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REPORTS OF THE
PRINCETON UNIVERSITY EXPEDITIONS
TO PATAGONIA, 1896-1899

J. B. HATCHER
IN CHARGE

EDITED BY
WILLIAM B. SCOTT
BLAIR PROFESSOR OF GEOLOGY AND PALÆONTOLOGY, PRINCETON UNIVERSITY

VOLUME II, I

ZOÖLOGY

PRINCETON, N. J.
The University

STUTTGART
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1904-27

J. PIERPONT MORGAN PUBLICATION FUND

REPORTS OF THE
PRINCETON UNIVERSITY EXPEDITIONS TO PATAGONIA
1896-1899

VOLUME II. 1

ORNITHOLOGY

BY

WILLIAM EARL DODGE SCOTT ASSOCIATED WITH R. BOWDLER SHARPE
PRINCETON UNIVERSITY BRITISH MUSEUM NATURAL HISTORY

PRINCETON, N. J.
THE UNIVERSITY
STUTTGART
SCHWEIZERBART'SCHE VERLAGSHANDLUNG (E. NÄGELE)
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VOLUME II
ORNITHOLOGY
PART I.
RHEIDÆ—SPHENISCIDÆ

BY
AM EARL DODGE SCOTT ASSOCIATED WITH R. BOWDLER SHARPE
PRINCETON UNIVERSITY BRITISH MUSEUM OF NATURAL HISTORY

(Pp. 1–112)

UNIV. OF
CALIFORNIA

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Class AVES.

Subclass RATITÆ.

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Order RHEIFORMES.

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Family RHEIDÆ.

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Genus RHEA Latham.

Type.

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Tonjou, Lacépède, Mém. Inst. iii. p. 519, gen. 128 (1801) (= *Rhea*, Lath.).

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American Rhea, Lath. Syn. Suppl. II. p. 292, pl. 137 (1801).

Churi Nandu Avestruz, Azara, Apunt. III. p. 89 (1805).

Rhea rhea, Illig. Prodr. p. 247 (1811).

Autruche d'Amérique, d'Ambournay, Préc. anal. des Trav. de l'Acad. roy de Rouen VI. pp. 142–144 (1819).

Rhea nandu, Less. Man. d'Orn. II. p. 208 (1828).

Rhea albesçens, Arrib. & Holmb., El Natural. Argent. I. pp. 1–4 (1878: Carhué, Buenos Ayres).

GENERAL DESCRIPTION.

Size.—Adult male.

Total length, about 52 inches.

Bill from gape, 4.5 inches.

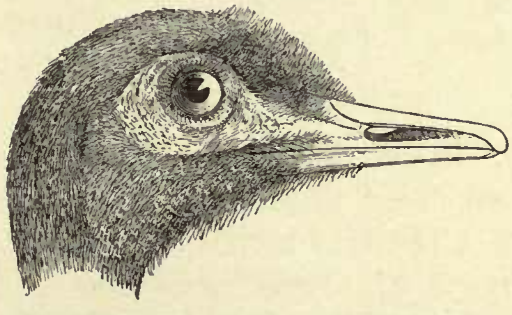
Tarsus, 11–12 inches.

Color.—General color gray.

Head: Blackish or dusky above.

Neck: Grayish white, the feathers having black shafts. A black or dusky band along the nape, which becomes a broad patch between the shoulders. The under part of the basal portion of the neck is dusky or black, from

FIG. 1.



Rhea americana. Profile. ⅓ natural size.

which area proceed two lateral crescents of like color, one on either side of the breast.

Wings: Short and imperfect.

Secondaries brown on the apical part, some of the inner ones partly and others, a few generally, wholly white.

Tail not apparent. Rump whitish.

Lower parts in general, whitish.

Legs: Feathered portion whitish. Feet and unfeathered portion yellowish horn brown, darkest on the tarsus.

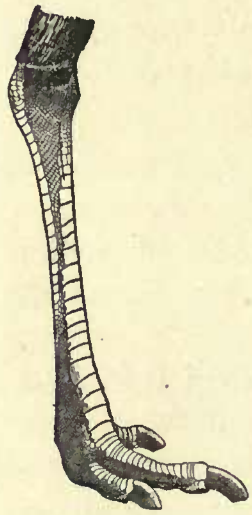
Metatarsus *with transverse scutes throughout entire length.* (See fig. 2.)

Bill: Yellow horn brown. Iris: Dark hazel brown.

Adult female paler in color than male.

Geographical Range.—From central Brazil, southward throughout Argentina.

FIG. 2.



Lower leg of *Rhea americana*, showing feathering and scute pattern. $\frac{1}{6}$ natural size.

The collection made by Mr. Hatcher did not include individuals of this species, but he tells me that the birds were met with a number of times, that some were preserved and afterward destroyed by vermin while in storage awaiting shipment.

So far as known the habits of *Rhea americana* are not to be distinguished from its near ally, *Rhea darwini*, Gould.

It seems probable that *Rhea americana* occurs sparingly and locally throughout Patagonia, where it is replaced by the more common *Rhea darwini.*

Darwin in the account of his travels in Southern South America dwelt so fully on the habits and modes of life of the Rhea and its close ally, *R. darwini* that extracts are here appended as follows:

"The bird is well known to abound on the plains of La Plata. To the north it is found according to Azara, in Paraguay, where, however, it is not common; to the south its limit appears to be from 42° to 43°. It has not crossed the Cordillera; but I have seen it within the first range of mountains on the Uspallata plain, elevated between six and seven thousand feet. The ordinary habits of the ostrich are well known. They feed on vegetable matter, such as roots and grass; but at Bahia Blanca I have repeatedly seen three or four come down at low water to the extensive mud-banks which are then dry, for the sake, as the Gauchos say, of catching small fish. Although the ostrich in its habits is so shy, wary and solitary, and although so fleet in its pace, it falls a prey, without much difficulty to the Indian or Gaucho armed with the bolas. When several horsemen appear in a semicircle, it becomes confounded, and does not know which way to escape. They generally prefer running against the wind; yet at the first start they expand their wings, and like a vessel make all sail. On one fine hot day I saw several ostriches enter a bed of tall rushes, where they squatted concealed, till quite closely approached. It is not generally known that ostriches readily take to the water. Mr. King informs me that in Patagonia, at the Bay of San Blas and at Port Valdes, he saw these swimming several times from island to island. They ran into the water, both when driven down to a point, and likewise of their own accord, when not frightened; the distance crossed was about 200 yards. When swimming, very little of their bodies appear above water, and their necks are extended a little forward; their progress is slow. On two occasions, I saw some ostriches swimming across the Santa Cruz river, where it was about four hundred yards wide, and the stream rapid. Capt. Sturt (Sturt's 'Travels,' vol. ii, p. 74), when descending the Merrumbedgee, in Australia, saw two emus in the act of swimming."

"The inhabitants who live in the country readily distinguish, even at a distance, the male bird from the female. The former is larger and darker coloured, and has a larger head. The ostrich, I believe the cock, emits a singular, deep-toned, hissing note. When first I heard it, standing in the midst of some sand-hillocks, I thought it was made by some wild beast, for it is a sound that one cannot tell whence it comes, or from how far distant. When we were at Bahia Blanca in the months of September and October, the eggs were found in extraordinary numbers, all over the country. They either lie scattered single, in which case they are never hatched, and are called by the Spaniards, huachos, or they are collected together into a shallow excavation, which forms the nest. Out of the four nests, which I saw, three contained twenty-two eggs each, and the fourth twenty-seven. In one day's hunting on horseback sixty-four eggs were found; forty-four of these were in two nests, and the remaining twenty scattered huachos. The Gauchos unanimously affirm, and there is no reason to doubt their statement, that the male bird alone hatches the eggs, and for some time after accompanies the young. The cock when on the nest lies very close; I have myself almost ridden over one. It is asserted that at such times they are occasionally fierce, and even dangerous, and that they have been known to attack a man on horseback, trying to kick and leap on him. My informer pointed out to me an old man, whom he had seen much terrified by one chasing him. I observe, in Burchell's travels in South Africa (Burchell's Travels, Vol. I, p. 280), that he remarks, 'having killed a male ostrich, and the feathers being dirty, it was said by the Hottentots to be a nest bird.' I understand that the male emu, in the Zoological Gardens, takes care of the nest; this habit therefore is common to the family.

"The Gauchos unanimously affirm that several females lay in one nest. I have been positively told that four or five hen birds have been actually watched and seen to go, in the middle of the day, one after the other, to the same nest. I may add, also, that it is believed in Africa, that two or more females lay in one nest. Although this habit at first appears very strange, I think the cause may be explained in a simple manner. The number of eggs in the nest varies from twenty to forty, and even to fifty; and according to Azara to seventy or eighty. Now although it is most probable, from the number of eggs found in one district being so extraordinarily great, in proportion to that of the parent birds, and likewise from the state of the ovarium of the hen, that she may in the course of the season lay a large number, yet the time required must be very long. Azara states (Vol. IV, p. 173) that a female in a state of domestication laid seventeen eggs, each at the interval of three days one from another. If the hen were obliged to hatch her own eggs, before the last was laid, the first probably would be addled; but if each laid a few eggs at successive periods, in different nests, and several hens, as is stated to be the case, combined together, then the eggs in one collection would be nearly of the same age. If the number of eggs in one of these nests is, as I believe, not greater on an average than the number laid by one female in a season, then there must be as many nests as females, and each cock bird will have its fair share of the labour of incubation; and this during a period when the females probably could not sit, on account of not having finished laying. Lichtenstein, however ("Travels," Vol. II, p. 25), states that the hens begin to set when ten or twelve eggs are laid, and that they afterwards continue laying. He affirms that by day the hens take turns in setting, but that the cock sits all night."

"I have before mentioned the great number of huachos, or scattered eggs, so that in one day's hunting the third part found were in this state. It appears odd that so many should be wasted. Does it not arise from some difficulty in several females associating together, and in finding a male ready to undertake the office of incubation? It is evident that there must at first be some degree of association between at least two females; otherwise the eggs would remain scattered at distances far too great to allow of the male collecting them into one nest. Some authors believe that the scattered eggs are deposited for the young birds to feed on. This can hardly be the case in America, because the huachos, although often found addled and putrid, are generally whole." (Darwin, "Voyage of H. M. S. Beagle," Birds, p. 120–123. 1841.)

Major H. Fothergill (Avicult. Mag. VIII. p. 127) writes: "My experience with these birds, during many years, is as follows: The hen lays her eggs promiscuously about the field, and her mate with his beak collects them into a hollow, which he scoops out in the ground. He then sits and hatches out the young birds in 42 days. The female has nothing further to do with the matter, and, in fact, is apt to tease her mate and cause trouble if not removed into another field. The male *Rhea* becomes exceedingly savage and dangerous during the breeding season, and, at that time of the year, makes a loud, booming sound, which I have heard quite a mile away. The female makes no sound whatever.

"I have had an interesting experience with my pair of old *Rheas*. The female laid twenty-three eggs, some of them many weeks after the male had commenced to sit. After sitting the usual six weeks he hatched out six strong little birds and left the nest with these. I took nine eggs which remained in the nest and placed them under large barn-door fowls, one of which hatched out two young *Rheas* shortly afterwards. On the appearance of these strange youngsters, when the eggs burst open in two halves with a slight explosion, the hen immediately rushed away with a cry of terror, leaving the chicks to their fate. I thereupon wrapped them in flannel until the evening when they were put under the male *Rhea*, who took to them all right."

RHEA DARWINI Gould.

Emu near to the Strait of Magellan, Dobrizhoffer, Account of the Albipones (Engl. transl.) I. p. 314 (1784).

Troisieme espéce d'Autruche, d'Orb. Bull. Soc. Nat. XIX. p. 221 (1829); id. Ann. Soc. Nat. XXI. Revue Bibliogr. p. 16 (1830).

Ilhui of the Patagonians, d'Orb. ll. cc.

Cosquella of the Pampas, d'Orb. ll. cc.

Rhea n. sp. Darwin Letters, p. 16 (1834) [teste Gray, Gen. B. III. p. 527].

Rhea pennata, d'Orb. Voy. Amer. Mérid. Itin. II. pp. 67 194 212, 303 note (1835–1838: descr. nulla); id. Archiv fur Naturg. V. p. 56 (1839); Wiegm. t. c. p. 56 note; Gray, List B. Brit. Mus. p. 54 (1844); Thienem. Fortpflanz. gez. Vogel. Erst. Heft. p. 4 taf. ii fig. 2, egg (1845); Chenu et Des Murs, Enc d'Hist. Nat. Ois. VI. p. 303.

Rhea darwinii, Gould, P. Z. S. 1837, p. 35 (Patagonia); Darw. t. c. p. 36 (Rio Negro); Charlsw. Mag. Nat. Hist. (2) I. p. 504 (1837); Ed. Mag. Zool. & Bot. II. pp. 92, 93 (1838); Gould, Isis, XXXII. p. 144 (1839); id. Voy. "Beagle," Birds, p. 123, pl. XLVII (1841); Gray, Gen. B. III. p. 527, pl. 138 (1844); Reichenb. Syn. Av. Gallin. tab. 388 figs. 2196–97 (1848); Hartl. J. f. O. 1854, B. pp. LXII, LXIII; Burm. Syst. Uebers. Thier. Bras. III. p. 352 (1856); Bp. C. R. XLIII. p. 841 (1856); Scl. Ibis, 1859, p. 115; id. P. Z. S. 1860, pp. 207–210, fig. 3; id. Ann. & Mag. Nat. Hist. (3) VI. pp. 142, 144 fig. 3 (1860); id. Ibis, 1860, p. 310; id. Trans. Zool. Soc. IV. p. 357 fig. 3 (head), pl. LXX (1862); Leadb. P. Z. S. 1863, p. 1 (egg: Patagonia); Schl. De Dierent. p. 327 fig. (1864); Phil. & Landb. An. Univ. Chile, XXXI, p. 240 (1868: Patagonia); Holz. J. f. O. 1870, p. 20 (egg); Gray, Handl. B. III. p. 2, no. 9844 (1871: S. Patagonia); Cunningh. P. Z. S. 1871, pp. 105–110, pls. VI, VI^A (osteology); id. Nat. Hist. Str. Magell. p. 134 (1871); Huds. P. Z. S. 1871, p. 534; Schl. Mus. Pays Bas, Struth. p. 7 (1873); Leyb. Excurs. Pamp. Arg. p. 85 (1873); Gigl. Viagg. Magenta, pp. 955, 962 (1875); Martens, J. f. O. 1875, p. 444; Harting, Ostriches & Ostr. Farm. pp. 85–92 (1877); Durnf. Ibis, 1877, p. 46 (Chupat Valley); id. Ibis, 1878, p. 406 (Central Patagonia); Beerbohm, Wand. Patagonia, pp. 50–52 (1879); id. Ibis, 1879, p. 385; Doering, Expl.

al Rio Negro, Zool. p. 58 (1881); Parker, P. Z. S. 1883, p. 141 (anatomy); Gadow, P. Z. S. 1885, pp. 308–322 (anatomy); Scl. t. c. p. 324 (egg); Ball, Notes of a Natural. in S. America, p. 261 (1887); Phil. Ornis. IV. p. 159 (1888; Atacampa); Scl. & Huds. Arg. Orn. II. p. 219 (1889); Scl. P. Z. S. 1890, p. 412 (Tarapacá); Oust. Mis. Scient. Cap Horn. Ois. p. 247 (1891); Scl. P. Z. S. 1891, pp. 132, 137, 334 (Canchosa); id. P. Z. S. 1892, p. 472 (in confinement); James, New List Chil. B. p. 14 (1892: Tarapacá); Blaauw. P. Z. S. 1893 p. 532 (nidification); Schal. J. f. O. 1894, p. 11 (eggs); Salvad. Cat. B. Brit. Mus. XXVII. p. 582 (1895); Nath. J. f. O. 1896, p. 257 (eggs); Lane, Ibis, 1897, p. 316 (Andes of northern Chile); Schal. Zool. Jahrb. Suppl. IV. p. 646 (1898: Punta Arenas); Sharpe, Handl. B. I. p. 1 (1899); Martens, Vög. Hamb. Magalh. Sammelr. p. 23 (1900; Tarapacá); Carabajal, La Patagonia Part II. p. 250 (1900); Salvad. Ann. Mus. Genov. (2) XX. p. 634 (1900); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 2 (1901); Prichard, Thr. Heart Patagonia,[1] pp. 63, 136, 163, 239 (1902).

Avesting petizo, Gosse, Bull. Soc. Acclim. III. p. 297 (1856).

Rhea americana subsp. *darwinii*, Bocking, Archiv fur Naturg. XXIX. p. 213 (1863).

Struthio darwini, Sternb. J. f. O. p. 274 (1869) (Buenos Ayres).

Pterocnemis darwinii, Scl. & Salv. Nomencl. Av. Neotrop. p. 154 (1873).

Avestruz petise, Darw. Natural. Voy. round the World, pp. 92–94 (1882).

GENERAL DESCRIPTION.

Size.—Adult male. Total length, about 36 inches.

Bill from gape, 3.6 inches.

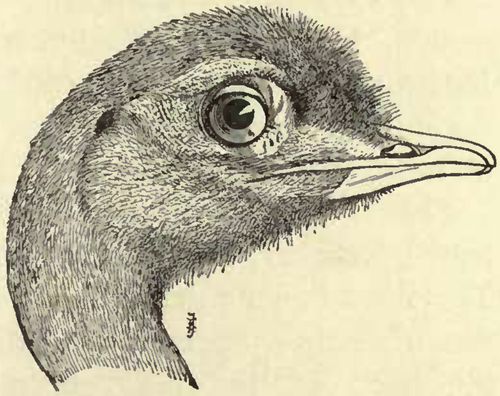
Tarsus 10.5 to 11 inches.

Princeton University collection, No. 6,704.

Color.—General color buff-brown, the tips of many of the feathers of the back, and of all of the quills silvery white.

Head: Grayish buff. The hairy long feathers of the brow, crown, sides of the face and occiput deep umber, giving a dusky appearance.

FIG. 3.



Head of *Rhea darwini*. Profile. ⅓ natural size.

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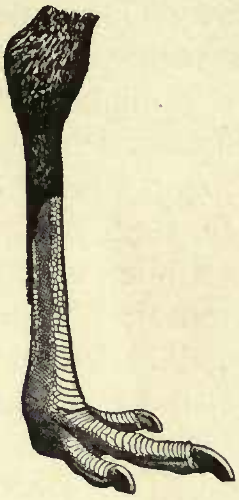
[1] Full title, Through the Heart of Patagonia.

The throat is pale buffish gray, the hairy long feathers being of the same shade.

FIG. 4.



Lower leg of *Rhea darwini*, showing feathering and scute pattern.

Neck: Exclusive of the throat the neck has a similar but noticeably darker ground color, the hairy long feathers are lacking but a general finely striped effect is produced by the dark brown median portion of each feather.

Wings: Short and imperfect. Secondaries, dark buffish brown like the back and tipped extensively with silvery white.

Tail not apparent.

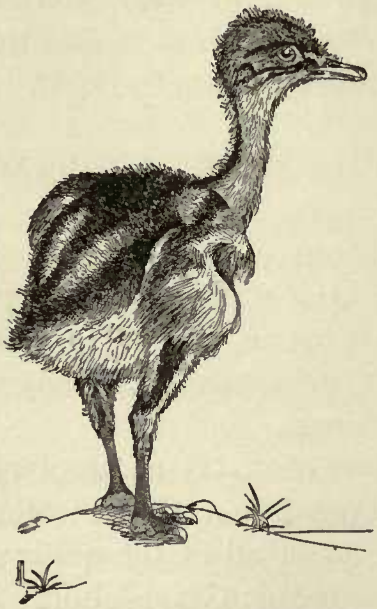
Rump brown, each feather with distinct silvery white tip.

Lower parts dull grayish white.

Legs: Feathered portion dull buffish brown. *The feathers extend down on the metatarsus as shown in Fig. 4*, then comes an area of small reticulate scutes and finally the lower part of the tarsus has transverse scutes.

Bare portion of tarsus yellowish horn brown. Feet paler.

FIG. 5.



Rhea darwini. Downy chick. ¼ natural size. From specimens collected by Mr. Hatcher.

Bill horn brown.

Iris dark hazel.

The female is similar to the male in size and color.

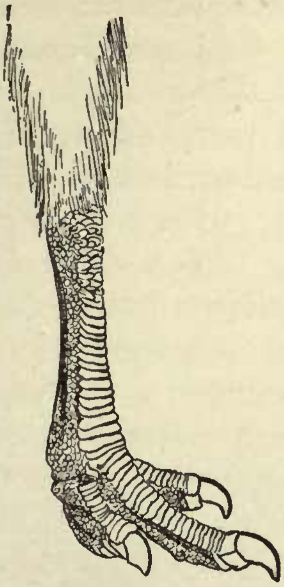
Downy Young. — Princeton University collection, No. 7,853. Taken near Coy Inlet, Patagonia, 12 November, 1896.

General character of down much like that of newly hatched ducklings.

Color. — The head is grayish, the longest feathers darker, giving a general dusky effect. The neck is pale gray, almost white beneath. A dark stripe proceeds from the occiput down the back of the neck, becoming gradually darker, until where the neck joins the body it is deep seal brown. This color also distinguishes the back, but is broken by two clearly defined white stripes, one on either side of a median region of seal brown. These three stripes, one dark and two white, are about half an inch in width and starting from just between the shoulders, end at the region of the tail.

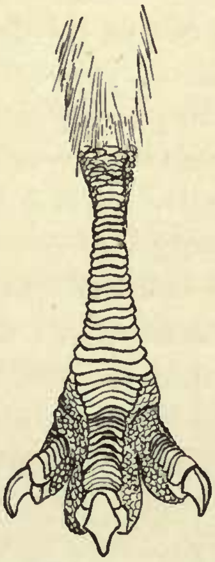
Beneath the general color is pale buffy white with a median stripe of dusky gray. The downy covering of the legs is buffy white, with a dark seal brown area on the back and lighter and less clearly defined area near the front, on the exterior feathered part of each leg.

FIG. 6.



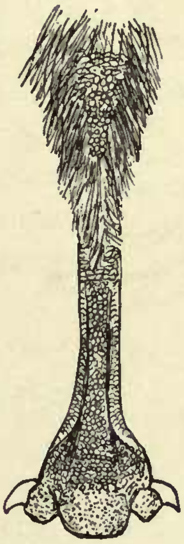
Rhea darwini. Lower leg of downy chick. Profile. Natural size.

FIG. 7.



Rhea darwini. Lower leg of downy chick. Front view. Natural size.

FIG. 8.



Rhea darwini. Lower leg of downy chick. Back view. Natural size.

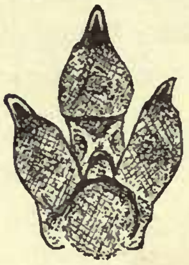
The *tarsus is feathered and scutellated precisely as in the adult bird.* (See Figs. 6, 7 and 8.)

Geographical Range.—Patagonia. Especially the southern half, becoming less common in the more northern portions and extending to Tarapaca.

A remarkable feature of the feet of the downy young is an extensive soft pad under each toe reaching from the nail to the juncture of the toes, and extending so far on each side of the toes as to give a webbed or semi-palmate appearance to the foot. (See Fig. 9.)

It is well known that both this species and the preceding one are vigorous swimmers, crossing wide and swift-flowing rivers and even passing from island to island in the sea, where the distance is not great. The remarkable partial webbing of the feet in the downy young here noticed must be of great advantage to these weaker birds in following the parent bird during such passages.

FIG. 9.



Rhea darwini. Foot of downy chick, from below, showing the pads. Natural size.

Several adults, immature, and nestlings have been received by the British Museum from the Valle del Lago Blanco, Chubut, January 10, 1900; collected by J. Koslowsky.

The Princeton Expeditions obtained many adults of *Rhea darwini*, Gould, and most of these were lost as previously described (page 4 this volume). However, two adult and a brood of seven downy young form a series of great value and are herewith cited in detail:

Form.	P. U. O. Coll. No.	Sex.	Locality.	Date.	Collector.
Skin.	7,985	*ad.*			J. B. Hatcher.
Mounted.	6,704	*ad.*			
Skin.	7,848	*Juv.*	Near Coy Inlet, Patagonia.	12 November, 1896.	
"	7,849	*Juv.*	" " " "	" " "	
"	7,850	*Juv.*	" " " "	" " "	
"	7,851	*Juv.*	" " " "	" " "	
"	7,852	*Juv.*	" " " "	" " "	
"	7,853	*Juv.*	" " " "	" " "	
"	7,854	*Juv.*	" " " "	" " "	

Darwin's account of this *Rhea* is here appended:

"When at the Rio Negro in northern Patagonia, I repeatedly heard the Guachos talking of a very rare bird which they called Avestruz Petise. They described it as being less than the common ostrich (which is there very abundant), but with a very close general resemblance. They said its colour was dark and mottled, and that its legs were shorter, and feathered lower down than those of the common ostrich. It is more easily caught by the bolas than the other species. The few inhabitants who had seen both kinds, affirmed they could distinguish them apart from a long distance. The eggs of the small species appeared, however, more generally known; and it was remarked, with surprise, that they were very little less than those of the Rhea, but of a slightly different form, and with a pale tinge of pale blue. This species occurs most rarely on the plains bordering the Rio Negro; but about a degree and a half further south they are tolerably abundant. When at Port Desire, in Patagonia (lat. 48°), Mr. Martens shot an ostrich; and I looked at it, forgetting at the moment, in the most unaccountable manner, the whole subject of the Petises, and thought it not a full-grown bird of the common sort. It was cooked and eaten before my memory returned. Fortunately the head, neck, legs, wings, many of the larger feathers and a large part of the skin had been preserved; and from these a very nearly perfect specimen has been put together, and is now exhibited in the museum of the Zoological Society. Mr. Gould, in describing this new species, has done me the honour of calling it after my name.

"Among the Patagonian Indians in the Strait of Magellan, we found a half Indian, who had lived some years with the tribe, but had been born in the northern provinces. I asked him if he had ever heard of the Avestrus Petise? He answered by saying, 'Why there are none others in the Southern countries.' He informed me that the number of eggs in the nest of the petise is considerably less than in that of the other kind, namely, not more than fifteen on an average; but he asserted that more than one female deposited them. At Santa Cruz we saw several of these birds. They were exceedingly wary; I think they could see a person approaching when too far off to be distinguished themselves. In ascending the river few were seen; but in our quiet and rapid descent, many, in pairs and by fours or fives, were observed. It was remarked that this bird did not expand its wings, when first starting at full speed, after the manner of the northern kind. In conclusion, I may observe that the *Struthio rhea* inhabits the country of La Plata as far as a little south of the Rio Negro in lat. 41°, and that the *Struthio darwinii* takes its place in southern Patagonia, the part about the Rio Negro being neutral territory. Mr. A. d'Orbigny, when at the Rio Negro, made great exertions to procure this bird, but never had the good fortune to succeed. Dobrizhoffer long ago was aware of there being two kinds of ostriches. He says: 'You must know, moreover, that Emus differ in size and habits in different tracts of land; for those that inhabit the plains of Buenos Ayres and Tucuman are larger, and have black, white and grey feathers; those near to the Strait of Magellan are smaller and more beautiful, for their white feathers are tipped with black at the extremities, and their black ones in like manner terminate in white.'" (Darwin's "Voyage of H. M. S. Beagle," pp. 92–94, D. Appleton & Co., 1888.)

As late as 1872, Mr. W. H. Hudson writes in a communication to the Zoölogical Society of London[1]:

"I did not succeed in obtaining specimens of the *Avestruz petise* (*Rhea darwini*). It is called by the Indians 'Molu Chinque' meaning 'Dwarf Chinque,' the name of the common species being Chinque. They are found over the whole country, from the Rio Negro to the Straits of Magellan, and are also met with, but rarely, north of the river. They were formerly exceedingly numerous along the Rio Negro; but a few years ago their feathers rose to an exorbitant price. Guachos and Indians found that hunting the Ostrich was their most lucrative employment; and consequently these noble birds were pursued unceasingly, and slaughtered in such numbers that they have been nearly exterminated wherever the nature of the country admits of their being chased. I was so anxious to obtain specimens of this bird that I engaged ten or twelve Indians, by offering a liberal reward, to hunt for me; they went out several times, but failed to capture a single adult bird.

"A few facts I have been able to gather in reference to them may not prove uninteresting, as the *Rhea darwini* is but imperfectly known. When hunted it frequently attempts to elude the sight by suddenly squatting down amongst the bushes; and when lying close amid the grey-leaved bushes that cover the country it frequents, it very easily escapes the sight. When hotly pursued it possesses the same remarkable habit as the *R. americana* of raising the wings alternately and holding them erect; it also manifests the same facility for suddenly doubling, in order to avoid its pursuers. It runs more swiftly than the common species, but is also more quickly exhausted. When running, the *R. americana* carries the neck erect or sloping slightly forward; the *R. darwini* carries it stretched forward almost horizontally, making it appear smaller than it is. From this habit it is said to derive the vernacular name of 'Dwarf Ostrich.' They go in flocks of from three or four to thirty or more individuals. I have not been able to learn if the males fight together as do those of the *R. americana*, or if they possess like that species a call-note. The strange trumpeting cry of the *R. americana* is often heard after they have been hunted and scattered in all directions; it is an indescribable sound, and resembles somewhat the hollow heavy sigh with which a bull often ends his bellowing, and appears to fill the air, so that it is impossible to tell from which quarter it proceeds. The soft leisurely notes are the same in both species. The *R. darwini* begins to lay at the end of July—that is, a month sooner than the *R. americana;* in all the breeding-habits of the two species there is a wonderful similarity.

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[1] Proc. Zoöl. Soc. London (April), 1872, p. 534.

"A number of females lay in one nest, the nest being merely a slight depression lined with rubbish; as many as fifty eggs are sometimes found in one nest. But the *R. darwini*, as well as the common species, lays many '*huacho*' or stray eggs, at a distance from the nest. I inspected a number of eggs brought in by a party of hunters, and was surprised at the great differences amongst them in size, form and colour. The average size of the eggs was the same as those of the common species; in shape they were more or less oval or elliptical, scarcely two being found precisely alike. When newly laid, the eggs are a deep rich green, and the shell possesses a fine polish. They soon fade however; and first the side exposed to the sun assumes a dull pale mottled green; this colour again changes to a yellowish, and again to a pale stone-blue, becoming at last almost white. The comparative age of each egg in the nest may be told by the colour of its shell.

"When the females have finished laying, the male sits on and hatches the young. The young are hatched with the legs feathered to the toes; these feathers are not shed from the legs, but are gradually worn off as the birds grow old by continual friction against the stiff shrubs amid which they live. In adults usually a few scattered feathers remain, often only the worn down stumps of the feathers; but I have been told by hunters that the old birds are sometimes caught with the legs entirely feathered, and that these birds frequent plains where there was but little scrub. The plumage of the young birds is of a dusky grey, without any white or black feathers or spots. When a year old they moult, and acquire the spotted plumage of adults, but do not attain the full size till the third year."

This exceedingly interesting account of the habits of *R. darwini* is quoted in full. It is probable that the errors in regard to the feathering of the "legs feathered to the toes" grew out of the fact of the partial feathering of the tarsus in both old and young birds, a marked character that might readily be exaggerated by the native hunters, for at this period Mr. Hudson had not been able to secure specimens.

Prichard, Through the Heart of Patagonia (p. 163), writes: "During the whole of our travels we observed but one kind of *Rhea* (*Rhea darwini*). The remarks that Darwin makes concerning the habits of this bird have little to be added to them. The male bird, which hatches out the young, will, when approached, feign to be wounded in order to draw off the intruder from the nest of the chicks. I have never seen more than nineteen chicks with a single ostrich at any period within a month or two of the hatching, but I was informed by the Gauchos that this number is not an outside limit."

Subclass CARINATÆ.

Huxley, P. Z. S. 1867 pp. 424–472; Sharpe, Hand-List Bds., I. p. 8, (1899).

Neognathæ, Pycraft, Trans. Zool. Soc. XV. pp. 149–290 (1900); id. J. Linn. Soc. Zool. XXVIII. pp. 343–357, pls. 31, 32 (1901).

Order TINAMIFORMES.

Crypturiformes, Sharpe, Classif. Bds. p. 68 (1891) (= *Tinamiformes*).

Tinamiformes, id. Hand-List Bds. I. p. 8 (1899): Mitchell, Trans. Linn. Soc. (2) VIII. pp. 173–275, pls. 21–23 (1901: Intestinal tract).

Family TINAMIDÆ.

Salvadori, Cat. Birds Brit. Mus. XXVII. p. 496 (1895); Sharpe, Hand-List Bds. I. p. 8 (1899): De Guerne, C. R. Congr. Orn. III. pp. 65–75 (1901: Life-history).

Subfamily *TINAMINÆ.*

Salvadori, Cat. Birds Brit. Mus. XXVII. p. 496 (1895); Sharpe, Hand-List Bds. I. p. 8 (1899).

Genus RHYNCHOTUS Spix.

	Type.
Rhynchotus, Spix, Aves. Bras. ii. p. 60 (1825); Salvadori, Cat. Bds. Brit. Mus. XXVII. p. 547 (1895); Sharpe, Hand-List Bds. I. p. 10 (1899)	*R. rufescens.*
Nothurus, Sw. Class. B. ii. p. 345 (1837)	*R. rufescens.*
Rhynchotis, Rchnb. Syn. Av. Gallinaceæ, t. 287. ff. 1579–80 (1848) (= *Rhynchotus*).	

Geographical Range.—South America, east of the Andes, from Brazil and Bolivia to the Argentine Republic.

RHYNCHOTUS RUFESCENS (Temminck).

Inambú-guazú, Azara, Apunt. III. p. 34 (1805).

Tinamus rufescens, Temm. Pig. et Gallin. III. p. 747 (1815); id. Pl. Col. pl. 412 (1826).

Cryptura guazu, Vieill. N. Dict. d'Hist. Nat. XXXIV. p. 103 (1819: ex Azara).

Tinamus guazu, Vieill. Enc. Meth. I. p. 370 (1820).

Crypturus rufescens, Licht. Verz. Doubl. p. 67 (1823); Darw. Voy. "Beagle," Birds p. 120 (1841).

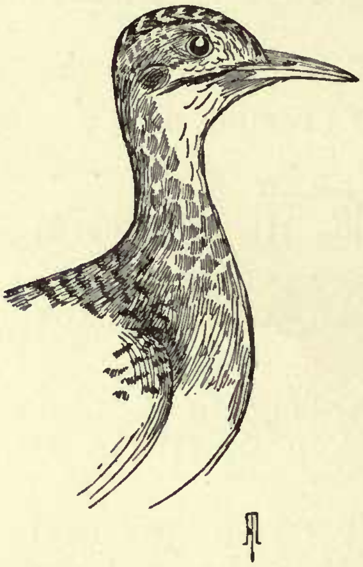
Rhynchotus fasciatus, Spix, Av. Bras. II. p. 60 tab. 76^a (1825).

Rhynchotus rufescens, Wagl. Syst. Av. Rhynchotus sp. I. p. 302 (1827); Gray, Gen. B. III. p. 525 (1844); Hartl. Ind. Azara. p. 21 (1847); Burm. J. f. O. 1858, p. 161 (Mendoza), 1860, p. 259; id. La Plata Reise, II. p. 498 (1861: Paraná; Rosaria; Tucuman; Banda Oriental); Gray, List Gall. Brit. Mus. p. 102 (1867: Maldonado); Sperling, Ibis, 1872, p. 77 (St. Lucia river, Rio de la Plata); Huds. & Scl. P. Z. S. 1872, p. 516 (Buenos Ayres); Scl. Ibis, 1873, p. 131 note; id. & Salv. Nomencl. Av. Neotr. p. 153 (1873); Durnf. Ibis, 1876, p. 166 (Chirilcay, abundant), 1877, p. 203 (Buenos Ayres); Nathus. J. f. O. 1879, p. 258 (egg); Gibson, Ibis, 1880, p. 167; Doering, Expl. al Rio Negro, Zool. Aves p. 57 (1881: Carhué); Barrows, Auk, I. p. 317 (1884: Entre Rios); Withington, Ibis, 1888, p. 473 (Lomas de Zamora); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 245 (1888: Bahia Blanca); Scl. & Huds. Argent. Orn. II. p. 209 (1889); Evans, Ibis, 1891, p. 83 (incubation); Frenzel, J. f. O. 1891, p. 123 (Cordoba); Graham Kerr, Ibis, 1892, p. 151

(Lower Pilcomayo); Holland, t. c. p. 214 (Estancia Espartilla); Aplin, Ibis, 1894, p. 212 (Uruguay); Salvad. Cat. B. Brit. Mus. XXVII. p. 548 (1895); Sharpe, Hand-list B. I. p. 10 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 12 (1901).

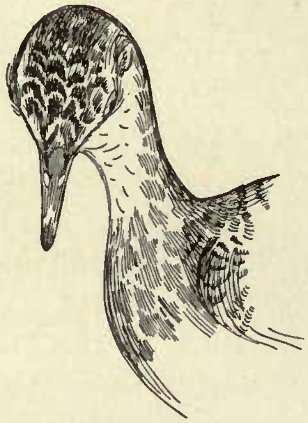
Nothurus rufescens, Swains. Classif. B. II. p. 345 (1837).

FIG. 10.



Rhynchotus rufescens. Profile.
½ natural size.

FIG. 11.



Rhynchotus rufescens. Bill and head from above. ½ natural size.

GENERAL DESCRIPTION.

Size.—Total length, 14–17 inches.

Wing, 8–9 inches.

Tail, 2.5–2.75 inches.

Culmen, 1.6–1.7 inches.

Tarsus, 2.3–2.5 inches.

The female is larger than the male.

Color.—Head: Crown and forehead black, the feathers edged generally with buffy rufous. Remainder of head buff with a dusky stripe extending from angle of mouth to the region of the ear. The female is more intense in shade of color and definite in barring than the male.

Throat: Pale buff, almost white.

Neck: Creamy buff with a rufous tinge.

Breast: Grayish buff with obscure bars of pale cinnamon on each feather.

Back: Pale grayish brown, with broad dusky and narrow buffy and paler rufous bars. This color and marking is characteristic of the rump, and upper wing and tail coverts.

Wing: Bastard wing, primaries, their coverts and secondaries bright cinnamon, rufous unmarked. Tertiaries grayish with brown and buffy barring. Under wing coverts rufous.

Tail: Like the back but grayer and barred with broader dusky and narrow buffy gray markings.

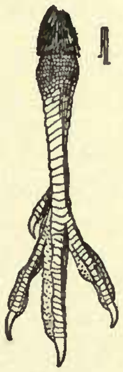
Lower parts: Gray with obscure dusky and buffy barring, most apparent on the sides and flanks.

Feet and legs dull brown. Bill horn. Iris hazel.

Downy young are characterized by a general rufous tint on head and neck, barred with longitudinal dusky stripes. The rest of the upper parts are barred with dusky and grayish white. The lower parts are pure white, sometimes with a cream tinge.

Geographical Range. — Argentina, northward to eastern and southern Brazil. South to Chubut and the plains of the northern portion of southern Patagonia.

FIG. 12.



Rhynchotus rufescens. Lower leg and foot. ½ natural size.

This Tinamou was not procured by the naturalists of the Princeton Expeditions to Patagonia. The material on which the descriptions are based is the series of birds in the British Museum and from two individuals in the Princeton University Museum cited in full below.

P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
8,817	Male.	Prov. of Buenos Aires, Argentine.	August, 1899.	Museo de La Plata.
8,818	Female.	Prov. of Buenos Aires, Argentine.	August, 1899.	Museo de La Plata.

These two representatives are examples of the pale southern race noticed by Count Salvadori (Cat. Bds. Brit. Mus., XXVII, p. 549 (1895). Barrows, speaking of this bird, says it is "Also called *Martinete*, as is also the crested Tinamou (*Calodromas elegans*), which is found farther south. The present species is a rather common resident at Concepcion, where it breeds. It frequents long grass and dense growths of creeping vines and brambles, but avoids equally the open grazing grounds and the wooded stretches. It runs with surprising speed, and is very difficult to flush without a dog, but once started flies straight and strong. But, as has been repeatedly noticed by Hudson and others, the second flight is much feebler, and if forced to rise for the third time it soon drops and can then be easily caught by a dog. Its ordinary call consists of four or five mellow notes closely resembling the call of the Baltimore Oriole, and for months I failed to attribute it to the true source. The eggs, four in number, are always laid on the ground in a rude nest of grasses, etc. They are about the size of a hen's egg, of a beautiful, purplish-chocolate color, and with a polish not met with outside this family. It would be difficult to find an egg which could compare in beauty with those laid by this bird. The species is more or less plenty at all points on the pampas. Its flesh is not particularly good, but is a vast improvement on the dry, tasteless flesh of the following species (*Nothura maculosa*) which, nevertheless, is highly prized because it is white." (Barrows, Auk, I, 4, p. 317, 1884.)

Genus NOTHURA Wagler.

Type.

Tinamus, Spix (nec Lath.), Av. Bras. II. p. 63 (1825). . *N. boraquira.*

Nothura, Wagler, Syst. Av. p. 297 (1827); Salvadori, Cat. Bds. Brit. Mus. XXVII. p. 558 (1895); Sharpe, Hand-List Bds. I. p. 11 (1899). . . . . *N. boraquira.*

Nothurus, part. Sw. Classif. Bds. II. p. 345 (1837).

Nothera G. R. Gray, List Gen. Bds. p. 63 (1840).

Geographical Range. — Bolivia, southern Brazil, Argentina and northern Patagonia.

NOTHURA MACULOSA (Temminck).

Inambui, Azara, Apunt. III. p. 40, (1805: Paraguay).

Tinamus maculosus, Temm. Pig. et Gallin. III. pp. 557, 748 (1815); ? Wied. Reis. nach Bras. I. p. 116 (1820) (= *medius*, Spix ?); Temm. Pl. Col., genre Tinamou, p. 2 (1826) (= *major*, Spix); ? Wied., Beitr. IV. p. 519 (1832) (= *medius*, Spix ?); Less. Compl. de Buff., 2d ed. Ois. p. 237 (1838); Nathus. J. f. O. 1879, p. 358 (egg), 1882, p. 283.

Cryptura fasciata, Vieill. Nov. Dict. d'Hist. Nat. XXXIV. p. 109 (1819) (ex Azara).

Tinamus fasciatus, Vieill. Enc. Méth. I. p. 370 (1820).

Crypturus maculosus, Licht. Verz. Doubl. p. 68, n. 706 (San Paulo) (1823); Thienem. Fortpflanz. p. 26 t. v. f. 11 (egg) (1845).

Tinamus major, Spix (nec auct.), Av. Bras. II. p. 64, t. 80 (Minas Geraes) (1825).

Nothura major, Wagl. Syst. Av. gen. Nothura, sp. 2 (1827); Wagl. Isis, 1829, p. 747; Less. Tr. d'Orn. p. 513, n. 2 (1831); Darwin, Zool. Voy. "Beagle" III. p. 119 (1841); G. R. Gray, Gen. Bds. III. p. 525, n. 2 (1844), Append. p. 25 (1849); Reichnb. Syn. Av. Gallinaceæ, t. 286. f. 1575 (1848) (ex Spix); ? Bonap. Compt. Rend. XLII. p. 881, n. 338 (1856); Bonap. Tabl. Parall. Gallin. (Extract), p. 12, n. 340 (1856); Pelz. Orn. Bras. p. 295 (Ypanema, Cimetirio, Pederneiras, Ytararé, Jaguaraiba), pp. 454, LVI (1871); Alix, Journ. de Zool. III. pp. 167, 252, pls. VIII–XI (skeleton and muscles) (1874).

Nothura medius, part. Wagl. Syst. Av. Gen. Nothura, sp. 2 (1827); Less. Tr. d'Orn. p. 513, n. 3 (1831).

Tinamus maculatus, Less. Man. d'Orn. II. p. 204 (1818); Natter. Fide Thienem. Fortpflanz. p. 26 (Amm.) (1845).

Nothura maculosus, Sw. Classif. Bds. II. p. 345 (1837).

Nothura maculosa, G. R. Gray, Gen. Bds. III. p. 525, n. 3 (syn. emend.) (1844); id. List. Bds. Brit. Mus. III. p. 53 (syn. emend.) (1844); Hartl. Ind. Azara Apunt. p. 21, n. 327 (syn. emend.) (1847); Licht. Nom. Av. p. 87 (Minas) (1854); Burm. Syst. Ueb. Th. Bras. III. p. 336 (part.) (1856); id. La Plata-Reise, II. p. 499 (part.) (1861); id. J. f. O. 1866, p. 259 (La Plata); G. R. Gray, List Gallinæ Brit. Mus. p. 104 (1867); Scl. & Salv. P. Z. S. 1868, p. 143 (Buenos Ayres); Sternberg, J. f. O. 1869, p. 274 (Buenos Ayres); Holtz, J. f. O. 1870, p. 19 (eggs); Reinh. Vid. Medd. Naturh. Foren. Kjöbenh. 1870, p. 51 (Minas Geraes); G. R. Gray, Hand-List Bds. III. p. 5, n. 9902 (1871); ? Leybold, Exc. Pamp. Arjent. p. — (1873); Sclat. & Salv. Nom. Av. Neotrop. p. 153, n. 1 (Brazil, Paraguay and Argentine) (1873); Hudson, P. Z. S. 1874, pp. 167, 170; Garrod, P. Z. S. 1875, p. 343 (plantar tendons); ? Leybold (v. Mart. transl.), J. f. O. 1875, p. 443; Durnf. Ibis, 1876, p. 165, 1877, p. 203 (Buenos Ayres); Gibson, Ibis, 1880, p. 168 (Buenos Ayres); Schleg. Mus.

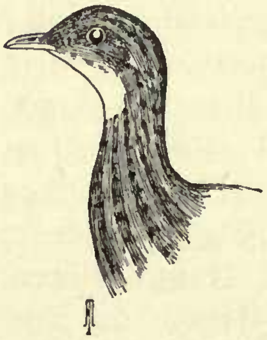
P.-B., Tinami, p. 42 (part., specim. 1, 2, 3, 6) (1880); Dalgleish, Pro. Roy. Phys. Soc. Edinb. VI. p. 249 (1882); White, P. Z. S. 1882, p. 629 (Missiones); Reichen. J. f. O. 1882, p. 11 (Zool. Gart.); Sclat. List. Vert. An. 8th ed. p. 547 (1883) (Zool. Gard.); Barrows, Auk, 1884, p. 317 (part., Entre Rios, lower Uruguay); Helm. J. f. O. 1885, p. 347 (muscles); Berl. J. f. O. 1887, p. 37 (Pilcomayo, Rio Grande du Sul), p. 127; Lucas, Pr. U. S. Nat. Mus. 1887, pp. 157–158 (osteology); Gibson, Ibis, 1888, p. 282 (Paysandu, Uruguay); Withington, Ibis, 1888, p. 473 (Lomas de Zamora); Sclat. & Huds. Argent. Orn. II. p. 211 (1889); Bedd. Ibis, 1890, pp. 62, 63 (with figure of *cæca*); Sclat. Ibis, 1890, p. 82 (quintocubital), p. 425; Heine & Rchnw. Nom. Mus. Hein. Orn. p. 304 (Chile and Montevideo) (1890); Holland, Ibis, 1892, p. 214 (Argentine); Aplin, Ibis, 1894, p. 214 (Uruguay); Sclat. Ibis, 1894, p. 453.

Tinamus maculosa, Gieb. Thes. Orn. III. p. 636 (syn. emend.), 1877.

Perdiz comun, Hudson, P. Z. S. 1892, pp. 547–548 (Valley of the Rio Negro, Patagonia).

General description.—Adult male P. U. O. C. No. 8,826, Province of Buenos Ayres, July, 1898, Museo de La Plata collection.

Fig. 13.



Nothura maculosa. Profile. ⅓ natural size.

Size.—Total length, about 10.5 inches.

Wing, 5.2 inches.

Culmen, 0.8 inches.

Tarsus, 1.3 inches.

The adult female is somewhat larger than the adult male.

Color Adult Male (cited).—General color above, pale yellowish brown, barred with shades of dark brown and striped with whitish. Below fulvescent, the breast and sides decorated with brown bars and spots.

Head: Cap brown, with border of blackish brown and light fulvescent edge to each feather. A broad fulvescent stripe reaching from the bill back over the eye and defining the crown. Sides of head and face fulvescent, more or less obscurely and minutely spotted with dusky brown.

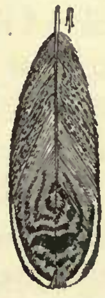
Neck: Above fulvescent and spotted or streaked minutely with dusky brown. Chin and upper throat immaculate white; the lower throat and rest of under neck abruptly fulvescent and more coarsely marked with dusky brown than the top of the neck. Sides of the neck fulvescent, marked with dusky brown.

Back: Clear pale yellowish or golden brown, each feather with a number of brown bars of varying shade, and with a whitish stripe on either edge just inside of the fulvescent or brownish edge mark of the feather (see fig. 14). Scapulars and lower back similar.

The upper tail coverts though similar in color and pattern, are not very long but obscure the rudimentary rectrices.

Wing: Most of the coverts similar in color and pattern to the back. Those of the primaries more golden brown, without the whitish streaks, but barred with arrow-shaped dark brown marks. The quills with the outer webs clearly marked with bars of pale creamy or fulvous and dark brown. The width of the light bars at least twice that of the dark ones. The outer primaries generally with plain inner webs, and the succeeding ones as well as the remainder of the quills with more or less fulvescent barring and marking on their inner webs, the innermost secondaries becoming much like the feathers of the back in color and decoration.

FIG. 14.



Nothura maculosa. Feather from back. Enlarged.

Lower Parts: Clear fulvous, the feathers of the breast spotted with dark brown forming an obscure pectoral band which extends down on the sides, where the markings assume a more barred character, which becomes defined further down on the sides and flanks. Lower wing coverts, lower tail coverts and axillaries clear fulvous.

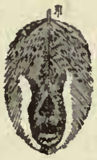
Bill: Dull yellowish brown.

Iris: Dark hazel brown.

Feet and Legs: Dull yellowish brown.

The adult female (P. U. O. C. No. 8,627, San Luis, Argentine Republic, August, 1895, Museo de La Plata collection) is similar to the adult male in color and markings.

FIG. 15.



Nothura maculosa. Breast feather.

Geographical Range.—Paraguay, Uruguay, southern Brazil, Argentina and extreme northern Patagonia (Hudson; Valley of the Rio Negro).

The naturalists of the Princeton Expeditions did not meet with the spotted Tinamou. The description given is based on a pair obtained in the Province of Buenos Ayres through the courtesy of the Museo de La Plata, and also on the fine series in the British Museum of Natural History.

The spotted Tinamou is included in the fauna of Patagonia on the strength of Hudson's observations on the Rio Negro, detailed in the Proceedings of the Zoölogical Society of London for 1872, on pages 547 and 548. A summary is here appended with Dr. Sclater's comment as it occurs in the text. Mr. Hudson writes: "You will, perhaps, have doubt about this bird being a new species; so great is its resemblance to the *Perdiz comun* [*i. e.*, *Nothura maculosa* (Temm.) P. L. S.], the Lesser Partridge, common everywhere on the Pampas. After arriving in Patagonia, I was told by several persons residing there that there were two species of small Partridge; one I found to be the *Perdiz comun* of Buenos Ayres, which frequents only the valley of the Rio Negro; the other was the smaller species, of which I send you several examples, and found only on the high tablelands. The adults of the last species resemble the young of the former; and after having observed them for several months, I am satisfied that they are not identical, nor varieties; for they differ not only in size and coloring, but in habits.

"I would far sooner consider the *Progne chalybea* and *P. purpurea*, identical in size, language, and habits as these birds are, one species, than *Perdiz chico* and *Perdiz comun*. I will speak first of the *Perdiz comun*. This bird, so abundant everywhere on the Pampas closely resembles, in all its habits, the *Perdiz grande*, living entirely amongst grass, as the Rail does amongst reeds; they are seen singly; but a number of individuals are usually seen in proximity. They are tame in disposition, and move in a leisurely manner, uttering as they walk or run a succession of soft whistling notes. When numerous it is unnecessary to shoot them, as any number can be killed with a long whip or stick. This species has two distinct songs or calls, pleasing to the ear and heard all the year round; one is a succession of twenty or thirty short, impressive notes of great compass, and ended by half a dozen rapidly uttered notes, beginning loud, and sinking lower till they cease; the other call is a soft continuous trill, appearing to swell mysteriously in the air; for the hearer cannot tell whence it proceeds; it lasts several seconds, then seems gradually to die away.

"The female lays five or six eggs, in colour like those of *Perdiz grande.* The valley of the Rio Negro, usually nine or ten miles in width, is a flat plain, resembling the Buenos-Ayrean Pampa; and wherever long grass and weeds abound the call-notes of the *Perdiz comun* is heard winter and summer; but outside of the valley I have never met with it.

"The *Perdiz chico* is nowhere very numerous, but seems thinly, and equally distributed everywhere on the high bush-covered tablelands, and, like the *Martineta,* is partial to places abounding in thin scrub. They have a shy disposition, and, when approached, spring up and run away with the same appearance of terror exhibited by the *Martineta.* Sometimes, when running, they utter low whistling notes like the *Perdiz comun;* their flight is higher, and produces far less sound than that of *Perdiz comun.* They have but one call note—a succession of short notes, like those of the other species, but without the quick concluding notes; this call is only heard in the breeding season. Its eggs are like those of the Pampa bird. It is never found in the moist, grassy places frequented by the *Perdiz comun.*"

I have included some remarks regarding *Perdiz chico,* of which Mr. Hudson sent skins to Dr. Sclater from the point in question. These were identified by Dr. Sclater as *N. darwini.* (Cf. footnote, P. Z. S., 1872, p. 547). The comparison of the two species by Mr. Hudson and his comments seem conclusive.

Darwin speaks of two species of *Nothura;* of *Nothura major* (= *N. maculosa*) he says: "These birds are very common on the northern shores of the Plata. They do not rise in coveys, but generally by pairs. They do not conceal themselves nearly so closely as the English partridge, and hence great numbers may be seen in riding across the open, grassy plains. Note, a shrill whistle. It appears a very silly bird: a man on horseback, by riding round and round in a circle, or rather in a spire, so as to approach closer each time, may knock on the head almost as many as he pleases. The more common method is to catch them with a running noose, or little lazo, made of the stem of an ostrich's feather, fastened to the end of a long stick. A boy on a quiet horse will frequently thus catch thirty or forty a day. The flesh of this bird, when cooked, is most delicately white, but rather tasteless." (Darwin, Zool. "Voy. Beagle," III, p. 119, 1841.)

Mr. Barrows, writing of *N. maculosa* as he observed it, says: "This tailless little bird, hardly bigger than *Ortyx virginianus*, is an abundant resident bird all over the Argentine Republic. The only wonder is that it continues to be as abundant, for it is easily snared in many ways, and is hunted in every possible manner, while, according to the best evidence at hand, it rarely lays more than four eggs in one nest, and only raises one brood in the season. "Near Bahia Blanca, I found a nest containing fresh eggs on the 10th of February, but this must have been an unusual case, and probably due to accident. The eggs are laid in make-shift nests on the ground from October to December." (Barrows, Auk, pp. 317, 318, 1884.)

NOTHURA DARWINI Gray.

Nothura minor, Darw. (nec Spix) Voy. "Beagle," Birds, p. 119 (1841: Bahia Blanca).

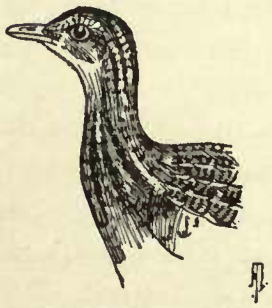
Nothura darwini, Gray, List Gall. Brit. Mus. p. 104 (1867: Bahia Blanca); id. Handb. B. III. p. 5, No. 9905 (1871); Scl. P. Z. S. 1872, p. 547, note (Rio Negro); Doering, Expl. al Rio Negro, Zool. Aves, p. 58 (1882: Rios Negro & Colorado); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 245 (1888: Patagonia); Scl. & Huds. Argent. Orn. II. p. 213, pl. XX (1889); Salvad. Cat. B. Brit. Mus. XXVII. p. 562, pl. XIX (1895); Sharpe, Hand-list B. I. p. 11 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 14 (1901).

Perdiz chicho, Huds. P. Z. S. 1872, p. 547 (Rio Negro).

Tinamus darwini, Gieb. Thes. Orn. III. p. 636 (1877).

Nothura maculosa. Scl. & Huds. (nec Temm.), P. Z. S. 1872, p. 547 (Rio Negro); Salvin, Ibis, 1873, p. 131, note; Durnf. Ibis, 1877, p. 45 (Chupat Valley); Schl. Mus. Pays Bas, Tinami, p. 44 (1880: Patagonia); Doering. Expl. al Rio Negro, Zool. Aves, p. 58 (1881: Rio Colorado); Barrows, Auk, I. p. 318 (1884: Bahia Blanca); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 245 (1888: N. Patagonia); Frenzel, J. f. O. 1891, p. 124 (Cordoba).

FIG. 16.



Nothura darwini. Profile head and neck. ⅓ natural size.

Nothura perdicaria, Durnf. (nec Kittl.), Ibis, 1878, p. 405 (Chupat Valley and in the Valleys of the Sengel and Sengelen); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 245 (1888: Patagonia).

GENERAL DESCRIPTION.

Size. Male Adult.—Total length, about 10 inches.

Wing, 5.2 inches.

Culmen, 0.8 inches.

Tarsus, 1.2 inches.

The adult female is somewhat larger than the adult male.

Color. Adult Male.—Similar in markings and color to *N. maculosa*, but paler and grayer below and without the clear white chin and upper throat. Much browner and darker above and the streaking of the feathers not whitish but fulvescent, and the mesial part of the feathers of the back chestnut brown and the barring almost black; *all the markings as the upper parts much finer.*

Geographical Range. —Northern Patagonia and the Argentine Republic.

Darwin's Tinamou was not obtained by the naturalists of the Princeton Expeditions. The description given is based on material in the British Museum of Natural History.

Mr. Hudson's remarks on this bird and its habits have appeared under the last species, *N. maculosa*, as they seemed more pertinent in that connection.

Of *Nothura minor* (= *Nothura darwini*) Darwin writes:

"I procured a specimen of this bird at Bahia Blanca, in northern Patagonia, where it frequented the sand-dunes and the surrounding sterile plains. Its habits appear similar to the *N. major*, but it lies closer and does not so readily take to the wing. It is the smallest of the species mentioned in this work, and its plumage is less distinctly spotted. The egg of this bird is described below. Spix's specimens were obtained at Tijucco in Brazil. The figure in his work on the Birds of Brazil, differs slightly from mine, in being less marked on the breast." (Darwin, "Voy. H. M. S. Beagle," Zool. Bds., 1841, p. 119.)

Subfamily *TINAMOTIDINÆ.*

Salvad. Cat. B. Brit. Mus. Vol. XXVII. p. 566, 1895; Sharpe, Hand-List Bds. I. p. 12 (1899).

Genus CALOPEZUS Ridgway.

	Type.
Eudromia, Is. Geoffr., Mag. de Zool. 1832, Cl. II. text to pl. I (1832) (nec *Eudromias*, Boie).	*C. elegans.*
Calodromas, Sclat. & Salv. Nom. Av. Neotrop. pp. 153, 156 (1873) (nec *Calodromus*, Guerin, 1832)	*C. elegans.*
Calopezus, Ridgw. Pr. Biol. Soc. Wash. II. p. 97 (1884) (= *Calodromas*); Salvadori, Cat. Bds. Brit. Mus. XXVII. p. 566 (1895); Sharpe Hand-List Bds. I. p. 12 (1899).	

Geographical Range.—Argentine Republic and lower Uruguay.

CALOPEZUS ELEGANS (d'Orbigny & Geoffroy Saint-Hilaire).

Perdix martineta, Azara, Apunt. III. p. 31 (1805).

Eudromia elegans, d'Orb. & Is. Geoffr. Mag. de Zool. 1832, pl. I (Patagonia); Fraser, P. Z. S. 1843, p. 116 (Mendoza); Hartl. Ind. Azara, p. 21 (1847); Bp. C. R. XLII. p. 881 (1856); Burm. J. f. O. 1858, p. 161, 1860, p. 259; id. La Plata Reise II. p. 498 (1861: San Luis Mendoza); Gray, Handl. B. III. p. 6 no. 9910 (1871); Scl. & Huds. P. Z. S. 1872, pp. 547, 549 (Rio Negro); Leyb. Excurs. Pamp. Argent. p. — (1873); Martins, J. f. O. 1875, p. 443; Doering, Expl. al Rio Negro, Zool. Aves, p. 58 (1882: Rios Negro & Colorado); Burm. An. Mus. Nac. Buenos Ajres III. Part X. p. 245 (1888: Patagonia), Part XI. p. 318 (1890: Chupat Valley).

Tinamotis elegans, Gray, Gen. B. III. p. 525 (1844); Bridges, P. Z. S. 1847, p. 28 (Mendoza).

Tinamus (*Eudromia*) *elegans*, Schl. Handl. Dierk. I. p. 399 (1857).

Tinamus elegans, Schl. Dierent. p. 233 (1864).

Calodromas elegans, Scl. & Salv. Nomencl. Av. Neotr. p. 153 (1873); Durnf. Ibis, 1877, p. 45 (Chupat Valley), 1878, p. 406 (Chupat Valley, resident); Scl. P. Z. S. 1879, p. 311 (eggs); id. Voy. Chall. II.

Birds, p. 152 (1881); Barrows, Auk, I. p. 318 (1884: Bahia Blanca); Scl. & Huds. Argent. Orn. II. p. 214 (1889); Frenzel, J. f. O. 1891, p. 124 (Cordoba); Scl. Bull. Brit. Orn. Club, V. p. XXIX (1893), Ibis, 1893, p. 256; Aplin, Ibis, 1894, p. 213 (Uruguay, not observed); Scl. t. c. p. 453.

Calopezus elegans, Ridgw. Proc. Biol. Soc. Wash. II. p. 97 (1884); Salvad. Cat. B. Brit. Mus. XXVII. p. 566 (1895); Sharpe, Hand-List, B. I. p. 12 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 14 (1901); Oust. C. R. Congr. Orn. III. p. 196 (1901: breeding at S. Maria, N. Patagonia); Prich. Thr. Heart Patagonia, p. 49 (1902).

General description.

Size. — Total length, 14.5 inches.

Wing, 8.5 inches.

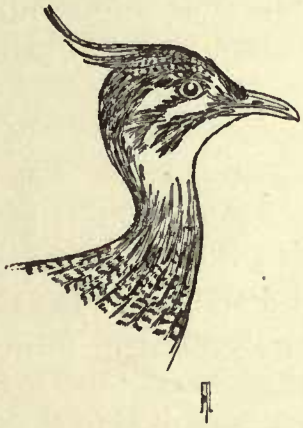
Tail, 3.25 inches.

Culmen, 1.1 inches.

Tarsus, 1.9 inches.

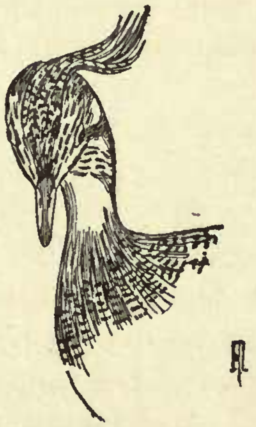
Color. — Head, grayish. A dusky or black median streak on each feather. A recurved vertical crest of dark brown or black feathers, some of which are edged with cinereous. Two whitish buff bands start from the region above the eye and run backward along the sides of the head.

Fig. 17.



Calopezus elegans. Profile. ¼ natural size.

Fig. 18.



Calopezus elegans. Head and bill from above.

A similar band proceeds from the base of the upper mandible across the sides of the face below the eye.

Neck: Grayish. The two buffy white face streaks prolonged downward on the upper neck. Each feather of the gray parts of the back of the neck has a dusky median stripe, and on the under neck each feather has in addition two paler buffy stripes laterally and numerous obscure dusky cross bars.

Back: Grayish, profusely banded and spotted, with dusky or black and pale fulvous, the latter spots being round, well defined and conspicuous.

Wings: Primaries blackish, spotted on the outer web and barred on the inner web with light buff, or white with a buffy tinge. The secondaries are barred on *both* webs.

Tail: Dusky, barred with darker or black and also with white with a strong buff tinge.

Lower parts: Generally buffy white, marked with many blackish crescent-shaped bars, except on the abdomen which is almost uniform in color. "Bill blackish," feet bluish gray (Sclater).

The sexes are similar in appearance and color.

Geographical Range.—Southern South America, from southern Uruguay, throughout western Argentina and Patagonia.

The Princeton Expeditions did not meet with this species and the above description is from material in the British Museum, and from three specimens in the Princeton University Museum cited in detail below.

P. U. O. C.	Sex.	Locality.	Date.	Collector.
8,645.	Male.	Bahia Blanca, Argentina.	August, 1895.	S. Pozzi.
8,646.	Female.	Bahia Blanca, Argentina.	August, 1895.	S. Pozzi.
8,816.	Male.	Province Buenos Aires, Argentina.	September, 1899.	Museo de La Plata.

The British Museum has lately acquired a series of males and females of this species from Colhue-huapi, Chubut; collected, from July 22 to August 9, 1902, by J. Koslowsky.

Mr. Barrows says of the "martinete" (a term applied in Spain to a heron or its plume. Here it undoubtedly refers to the long feathers of the crest), that unlike the species just described, this one is always found in small parties, and usually running in single file. In the neighborhood of Bahia Blanca it was not uncommon, but it was not elsewhere met with, being confined pretty rigidly to the shrubby country bordering the pampas on the south and west. The eggs are polished, but of a greenish tint, and are said to be commonly five or six in number. The flesh is fairly palatable. (Barrows, Auk, I, 4, p. 318, 1884.)

Genus TINAMOTIS Vigors.

Type.

Tinamotis, Vigors, P. Z. S. 1836, p. 79; Salvad. Cat. Birds, Brit. Mus. XXVII. p. 567 (1895); Sharpe, Hand-List Bds. I. 12 (1899). . . . . *T. pentlandi.*

Geographical Range. — South America. From the Andes of Peru and Ecuador, southward to northern Chile and also northern Patagonia.

TINAMOTIS INGOUFI Oustalet.

Tinamotis ingoufi, Oust. Ann. Sc. Nat. Zool. IX. p. 18 (1890: Santa Cruz, Patagonia); id. Miss. Sci. Cap Horn, Oiseaux, pp. 105, 106, pl. 1 (1891); Salvad. Cat. B. Brit. Mus. XXVII. p. 569 (1895); Sharpe, Hand-List B. I. p. 12 (1899).

GENERAL DESCRIPTION.

Size. — (Female type.) Total length, 15.5 inches.

Wing, 8.0 inches.

Tail, 2.75 inches.

Culmen, 1.0 inch.

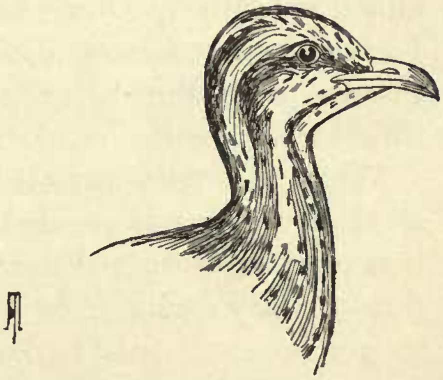
Tarsus, 1.25 inches.

Color. — (Female type.) Upper parts slaty with a buff tinge, each feather having a V-shaped brown mark of varying size, bounded by a narrow creamy buff margin.

Head: With dusky slate and buffy white stripes. Upper part of head dusky slate, with a buffy white band on either side joining on the occiput.

Throat: Buffy white, with dusky slate spots.

FIG. 19.



Tinamotis ingoufi. Profile and pattern of marking of head and neck. ½ natural size.

Neck: Two buffy white stripes on each side, one beginning above and the other below the eye proceed down each side of the neck. A single dusky slate stripe on the back of the neck, and one on each side of the neck between the buffy white stripes. Back and wing coverts: Slate with the V-shaped marks of brown having narrow creamy buff borders, conspicuous.

Wings: Primary quills, *uniform bright cinnamon.* Secondaries, bright cinnamon with dusky markings, *not bands.*

Tail: Coverts like back. Feathers slaty olive with irregular barring and markings of creamy buff.

Lower parts: Upper breast much like back with similar V-shaped marks to each feather. These are more slaty and the narrow cream buff bordering is paler. Lower breast: Paler, almost white as to ground color, with dusky crescent marks on each feather. Lower abdomen and under tail coverts *pale rufous.*

Feet lead color.

Iris pale yellow.

Geographical Range.—The type, the only representative so far known, was taken in eastern Patagonia, in the vicinity of Santa Cruz, 18 October, 1882, by M. Lebrun.

The type of this species described by Dr. E. Oustalet is, so far as yet ascertained the only specimen in any of the collections made in South America. I have by the courtesy of the authorities of the Paris Museum, Jardin des Plantes, been able to examine carefully and study the characters of this little-known bird.

While in certain ways it betrays its relationship to *Tinamotis pentlandi,* its close ally, yet as pointed out both by Dr. Oustalet and Count Salvadori, it is readily distinguishable from that species by its *uniform bright cinnamon* primary quills.

Order COLUMBIFORMES.

Sharpe, Hand-List Bds. Vol. I. p. 51 (1899).

Suborder *COLUMBÆ*.

Salvadori, Cat. Birds, Brit. Mus. XXI. p. 2 (1893); Sharpe, Hand-List Bds. I. p. 51 (1899).

Family Columbidæ.

Salvad. t. c. p. 240.

Subfamily *COLUMBINÆ*.

Salvad. t. c. p. 240.

Genus COLUMBA Linnæus.

	Type.
Columba, Linn. S. N. I. p. 279 (1766); Salvadori, Cat. Bds. Brit. Mus. XXI. p. 241 (1893); Sharpe, Hand-List Bds. I. p. 68 (1899).	*C. livia.*
Palumbus, Kaup, Natürl. Syst. p. 107 (1829).	*C. palumbus.*
Les Picazuros, Less. Compl. de Buff VIII. p. 95 (1837).	
Alsocomus, "Tickell," J. A. S. B. XI. I. p. 461 (1842).	*C. punicea.*
Dendrotreron, Hodgs. in Gray's Zool. Misc. p. 85 (1844).	*C. hodgsoni.*
Patagiœnas Rchnb. Av. Syst. Nat. pl. XXX (1852).	*C. leucocephala.*
Lepidœnas, ibid.	*C. speciosa.*
Lithœnas, Rchnb. ibid.	*C. livia.*
Tæniœnas, Rchnb. ibid.	*C. albitorques.*
Chlorœnas, Rchnb. ibid.	*C. fasciata.*
Stictœnas, Rchnb. ibid.	*C. arquatrix.*
Janthœnas, Rchnb. ibid.	*C. ianthina.*
Picazurus, Chenu & Des Murs (1853), fide Des Murs in Chenu, Enc. d'Hist. Nat. Ois. VI. p. 39 (1854?)	*C. picazuro.*
Strictœnas (errore?), Des Murs in Chenu, Enc. d'Hist. Nat. Ois. VI. p. 40 (1854?) (=*Stictœnas*).	
Leucomelæna, Bp. Consp. Av. II. p. 44 (1854).	*C. leucomela.*
Janthænas, Bp. op. cit. p. 44 (1854) (= *Janthœnas*).	
Trocaza, Bp. op. cit. p. 45 (1854); id. Compt. Rend. XXXIX. p. 1104 (1854).	*C. trocaz.*

Columba, subgen. *Palumbæna*, Bp. Consp. Av. II. p. 49 (1854) . . . . *C. œnas.*

Tæniœnas, Bp. op. cit. p. 49 (1854) (= *Tæniœnas*).

Crossophthalmus, Bp. op. cit. p. 55 (1854) . . . *C. gymnophthalme.*

Chlorœnas, Bp. Ann. Sc. Nat. Zool. (2), I. p. 140, n. 1659 b (1854) (= *Chlorœnas*).

Stictœnas, Bp. ibid. n. 1660 (1854) (= *Stictœnas*).

Patagiœnas, Bp. ibid. n. 1661 (1854) (= *Patagiœnas*)

Lepidœnas, Bp. ibid. n. 1662 (1854) (= *Lepidœnas*).

Leucomelœna, Bp. Compt. Rend. XXXIX. p. 1104 (1854) (= *Leucomelæna.*)

Palumbæna, Bp. Compt. Rend. XLIII. pp. 838, 948 (1856) . . . . *C. œnas.*

Leucomelaina, Rchnb. Tauben I. p. 52 (1862) (= *Leucomelæna*).

Leucotænia, Rchnb. Tauben, II. p. 167 (1862) . . *C. unicincta.*

Dendrophaps (ubi?) fide G. R. Gr. Hand-List, II. p. 233 (1870) (*Dendrotreron.*)

Columba, subgen. *Rupicola*, Bogd. Cons. Av. Imp. Ross. fasc. I. p. l. (1884) . . . . *C. livia.*

Columba, subgen. *Sylvicola*, Bogd. op. cit. p. 3 (1884) . . . . *C. œnas?*

Cœlotreron, Heine, Nomencl. Mus. Hein. Orn. p. 275 (1890) (= *Palumbœnas*).

Patagœnas, Heine, op. cit. p. 276 (1890) (= *Patagiœnas*).

Geographical Range.—Throughout the world.

COLUMBA MACULOSA Temminck.

Palomacobijas manchadas, Azara, Apunt. III. p. 10 (1805).

Columba maculosa, Temm. Pig. et Gallin. I. pp. 113, 450 (1813); Gray, Gen. B. II. p. 470 (1844); Hartl. Ind. Azara, p. 20 (1847); Scl. P. Z. S. 1865, p. 239; id. & Salv. P. Z. S. 1868, p. 143, 1869, p. 600; Scl. P. Z. S. 1870, p. 665; id. & Huds. P. Z. S. 1872, pp.

545, 549 (Rio Negro); Scl. & Salv. Nomencl. Av. Neotr. p. 132 (1873: pt.); Leyb. Excurs. Pamp. Argent. p. 89 (1873); Durnf. Ibis, 1877, p. 42 (Chupat Valley, breeds), p. 193 (Baradero, April, common); 1878, p. 401 (central Patagonia, common resident); White, P. Z. S. 1882, p. 626 (Fuerte de Andagala, Catamarca, Sept.); Doering, Expl. al Rio Negro, Zool. Aves, p. 55 (1882: Carhué: Rios Colorado & Negro); Barrows, Auk, I. p. 274 (1884: Concepcion, common resident, breeds in Nov.); Gibson, Ibis, 1885, p. 282; Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 245 (1888: Northern Patagonia); Scl. & Huds. Argent. Orn. II. p. 140 (1889); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 328, part (1891); Huds. Idle Days in Patag. pp. 80, 125 (1893); Salvad. Cat. B. Brit. Mus. XXI. p. 273 (1893); Sharpe, Hand-List B. I. p. 70 (1899); Prich. Thr. Heart Patagonia, p. 158 (1902).

Columba pœciloptera, Vieill. N. Dict. d'Hist. Nat. XXVI. p. 344 (1818: ex Azara); D'Orb. Voy. II. pp. 303, 318 (1844).

Columba maculipennis, Licht. in Mus. Berol., Bp. Consp. Av. II. p. 55 (1854).

Columba gymnophthalmos, Reichenb. (nec Temm.) Syn. Av. fig. 1268 (1847).

Palumbus gymnophthalmos, Reichenb. Av. Syst. Nat. p. xxv (1852).

Crossophthalmus reichenbachi, Bp. Consp. Av. II. p. 55 (1854).

Patagiœnas maculosa, Burm. La Plata Reis. II. p. 496 (1861: Mendoza Cordova; Tucuman); Frenz. J. f. O. 1891, p. 123 (Cordoba).

Picazuros maculosa, Gray, Handl. B. II. p. 235, no. 9267 (1870).

Crossophthalmus maculosus, Pelz. Orn. Bras. p. 274 note (1871); Heine & Reichen. Nomencl. Mus. Hein. p. 276 (1890).

Chlorœnas fallax, Schl. Mus. Pays. Bas. Columbæ, p. 80 (1873: Rio Negro).

Patagœnas maculosa, Carbajal, La Patagonia, Part II. p. 269 (1900).

GENERAL DESCRIPTION.

Size.—Total length, about 14 inches.

Wing, from 8.75 to 9.3 inches.

Tail, 5 inches.

Bill, from 0.50 to 0.55 inches.

Tarsus, 1.1 inches.

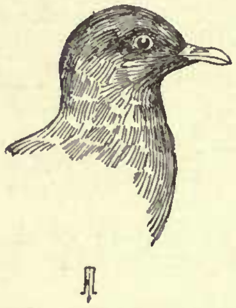
Color.—General color above dusky or sooty brown, below dove gray with a strong tinge of vinaceous.

Head: Gray with vinous tinge, the sides and cheeks darker and lacking any vinaceous shading.

Neck: Gray, with a vinaceous tint.

Back: Entire mouth, the scapular and upper wing-coverts dusky brown, or sooty, tipped with white triangular spots, most conspicuous on the upper coverts. The outer greater wing-coverts are gray with a strong bluish tinge, and bordered with white; their tips, the rump and upper tail coverts are deep lead color.

FIG. 20.



Columba maculosa
Profile of head and neck. ⅔ natural size.

Wings: Primary and secondary quills deep dusky gray with narrow white edging. The under sides of the wings are light lead color.

Tail: Deep lead color with a black terminal band.

Lower parts: The entire lower parts except the under tail coverts, are gray dove color, with a vinous tint.

The under tail coverts are deep lead color.

"Iris white or light slate" (White). "Beak grey; legs red" (A. Peel).

The sexes are similar in appearance.

Geographical Range. — Uruguay, Argentine Republic and northern Patagonia.

This bird is not represented in the collections made by the Princeton Expeditions and the descriptions here given are based on specimens in the British Museum of Natural History, and on a single individual in the Princeton University Museum.

P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
1.	Male.	La Rioya, Argentina.	February, 1895.	Museo de La Plata.

Barrows says of this pigeon:

"A common resident at Concepcion, where it is found in large flocks through the year. Many nests were found early in November, all placed in trees in dry woods, and only ten or fifteen feet from the ground.

"Each nest contained a single white egg. Either the variation in size of the eggs of this species is very great, or else a few of the preceding species were breeding with them; for several eggs were found which were very much larger than the others. I failed, however, to detect a single specimen of *C. picazuro* among the birds which left the trees as we approached. This species was again met with at Carhue." (Barrows, Auk, I, No. 4, p. 274, 75, July, 1884.)

Of this pigeon as he saw it in Patagonia Mr. Hudson writes:

"This bird appears in winter in the settled parts of the Rio Negro; they come in large flocks, and gather in great numbers on the ploughed fields, eager to devour the wheat; so that the farmers, when sowing broadcast, have to be constantly firing at them, or to keep trained dogs to chase them from the fields. When on the ground, the flock keeps very much crowded together, all the birds running with great rapidity, and eagerly snatching up the grain or seed they find. The lively, brisk manner of the Patagonian Pigeon is in strong contrast with the slow, stately steps and deliberate manner of picking up its food of the Buenos-Ayrean species (*i. e., Columba picazuro:* v. Scl. et Salv. P. Z. S., 1868, p. 143 —P. L. S.); but the voice of the former is exceedingly hoarse, while that of the latter is the most agreeable dove-melody I have ever heard." (Hudson, P. Z. S., 1872, p. 545.)

COLUMBA ARAUCANA Lesson.

Columba araucana, Less. Voy. Coq. Zool. p. 706, pl. 40 (1828); Gray, Gen. B. II. p. 470 (1844); Des Murs in Gay's Hist. Chil. Zool. I. p. 376 (1847); Hartl. Naum. 1853, pp. 215, 221 (Valdivia); Bibra, Denkschr. Ak. Wien. V. p. 130 (1853); Cass. U. S. Expl. Exped. Birds, p. 254 (1858: Chile); Pelz. Novara Reise, Vög. p. 108 (1865); Scl. P. Z. S. 1867, pp. 330, 339 (Chile); id. & Salv. Nomencl. Av. Neotr. p. 132 (1873); James, New List Chil. B. p. 10 (1892); Salvad. Cat. B. Brit. Mus. XXI. p. 296 (1893); Lataste, Actes Soc. Scient. Chile, III. p. cxv (1893: Cordillière d'Andes); Schalow. Zool. Jahrb. Suppl. IV. p. 671 (1898: eggs); Sharpe, Hand-List B. I. p. 71 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 89 (1901).

Columba denisea, Temm. Pl. Col. pl. 502 (1830: Chile); Less. Rev. Zool. 1842, p. 209 (Valdivia: Chile); Schl. Mus. Pays Bas. Columbæ, p. 67 (1873).

Columba fitzroyii, King, P. Z. S. 1830, p. 15 (Chiloe Island); Darw. Voy. "Beagle," Birds, p. 114 (1841: Peninsula of Tres Montes, Valparaiso); Fraser, P. Z. S. 1843, p. 115 (Andes of Chile).

Columba meridionalis, Peale (nec King), U. S. Expl. Exped. Birds, p. 111 (1848: Rio Negro, Patagonia); Burm. An. Mus. Nac. Buenos Ayres, III. Part X. p. 245 (1888: Southern Patagonia, Straits of Magellan).

Chlorœnas denisea, Bp. Consp. Av. II. p. 51 (1854).

Chlorœnas araucana, Heine & Reichen. Nomencl. Mus. Hein. p. 277 (1890).

GENERAL DESCRIPTION.

Size.—Total length, about 16 inches.

Wing, 8.5 inches.

Tail, 5.5 inches.

Bill, 0.65 inch.

Tarsus, 1.25 inches.

Color.—General color throughout chestnut with a vinaceous tinge.

Head: Vinous chestnut.

Neck: Vinous chestnut, with a *whitish band on the nape.* The feathers of the head and neck shaded with metallic bronzy-green.

Back vinous chestnut. Rump lead color. Upper tail coverts: The basal upper tail coverts are like the rump, but the longer upper tail coverts are gray with a strong tinge of brown.

Wings: Scapulary vinous chestnut. The wing coverts are grayish brown, lightest on the outer and greater coverts. The quills are dusky or blackish with narrow whitish margins.

Tail: Lead color, with a subterminal band of black, and a terminal band a little less than an inch broad, like the body color of the tail.

Lower parts: Generally vinous chestnut, the breast with an iridescent amethyst tinge. The under wing coverts and sides lead color.

"Iris red-yellow; bill black; feet dark rose-red" (Philippi, fide Hartlaub); Salvadori, Cat. B. Brit. Mus., XXI, p. 296 (1895).

The female is similar to the male and young or immature birds lack the whitish band on the nape of the neck.

Geographical Range.—Central Peru, Chile and Patagonia to the Straits of Magellan.

The above description is based on material in the British Museum of Natural History, as this form was not secured by the naturalists of the expeditions sent out by Princeton University to Patagonia.

Family Peristeridæ.

Salvad. Cat. Birds, Brit. Mus. XXI. p. 372 (1893); Sharpe, Hand-List Bds. I. p. 76 (1899).

Subfamily *ZENAIDINÆ.*

Salvad. t. c. p. 372; Sharpe, t. c. p. 76.

Genus ZENAIDA Bonaparte.

Type.

Zenaida, Bp. Comp. List, p. 41 (1838); Salvadori, Cat. Bds. Brit. Mus. XXI. p. 379 (1893); Sharpe, Hand-List Bds. I. p. 76 (1899). . . . . *Z. amabilis.*
Stenurœna (subgen.) Rchnb. Tauben, I. p. 20 (1862). . . . *Z. stenura.*
Platypterœna (subgen.) Rchnb. Tauben, I. p. 20 (1862). *Z. pentheria* (= *nificauda?*).

Geographical Range.—Florida Keys, throughout the Antilles, Yucatan, and southward in South America throughout Chile and northern Patagonia.

Zenaida auriculata (Des Murs).

Paloma parda manchada, Azara, Apunt. I. p. 17 (1802).
Columba aurita, part, Temm. Pig. et Gallin. I. pp, 247, 467 (1813).
Columba maculata, Vieill. (nec Gm.) Enc. Méth. I. p. 376 (1823); Burm. La Plata Reise, I. p. 306 (1861).
Columba meridionalis, King (nec Lath.) Zool. Journ. IV. p. 92 (1828: Straits of Magellan); Scl. P. Z. S. 1867, pp. 330, 339 (Chile).
Columba aurita, Licht. (nec Temm.) Verz. Doubl. p. 66 (1823: Montevideo); Darw. Voy. "Beagle," Birds, p. 115 (1841).
Zenaida aurita, Fraser (nec Temm.) P. Z. S. 1843, p. 115 (Chile); Hartl. Ind. Azara, p. 20 (1847); id. Naum. 1853, p. 21 (Valdivia); Leyb. Excurs. Pamp. Argent. pp. 49, 52 (1873); Macfarl. Ibis, 1887, p. 202

(Coquimbo); Phil. Ornis. IV. p. 159 (1888: Atacama); Lataste, Actes Soc. Scient. Chile, III. p. cxv (1893: Nuble foot of Cordilleras, Chile, Nov.).

Peristera auriculata, Des Murs in Gay's Hist. Chile, I. Zool. p. 381, pl. 6 (1847); Hartl. Naum. 1853, p. 221 (Valdivia).

Peristera chrysauchenia, Reichenb. Syn. Av. pl. fig. 1429 (1847).

Zenaida chilensis, "Bonap." Reichenb. Syn. Av. Columb. pl. 245^{B}, figs. 3529–30 (1851).

Chlorœnas meridionalis, Bp. Consp. Av. II. p. 52 (1854: Straits of Magellan).

Zenaida auriculata, Bp. Consp. Av. II. p. 82 (1854); Scl. P. Z. S. 1867, pp. 330, 339 (Chile); Heine & Reichen. Nomencl. Mus. Hein. p. 284 (1889: Chile); Salvad. Cat. B. Brit. Mus. XXI. p. 384 (1893); id. Boll. Mus. Torino, 1887, No. 12, p. 32; Schalow, Zool. Jahrb. Suppl. IV. p. 671 (1898: Santiago); Sharpe, Hand-List B. I. p. 77 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 93 (1901).

Zenaida maculata, Bp. Consp. Av. II. p. 82 (1854); Burm. La Plata Reis. II. p. 497 (1861); Scl. & Salv. P. Z. S. 1868, p. 143 (Conchitas); Sternb. J. f. O. 1869, pp. 193, 273 (Buenos Ayres); Holtz, J. f. O. 1870, p. 19 (eggs); Gray, Handl. B. II. p. 241, No. 9352 (1870); Scl. & Salv. Nomencl. Av. Neotr. p. 132 (1873); Huds. P. Z. S. 1874, p. 170 (Patagonia); Durnf. Ibis, 1876, p. 163 (Buenos Ayres, Aug.), 1877, p. 193 (Baradero, April, common); Gibson, Ibis, 1880, p. 8 (Cape San Antonio, Buenos Ayres, breeds Sept. to March); Sharpe, P. Z. S. 1881, p. 9 (Coquimbo); Doering, Expl. al Rio Negro, Zool. Aves, p. 55 (1881: abundant in the valleys of the Rio Negro and the Rio Colorado); White, P. Z. S. 1882, p. 626 (Fuerte de Andegala, Catamarca, Aug.): Barrows, Auk, I. p. 275 (1884: Concepcion abundant throughout the year, but not observed breeding); Gibson, Ibis, 1885, p. 282 (Uruguay); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 245 (1888: Patagonia): id. Part XI. p. 318 (1890: Rio Chico); Scl. & Huds. Argent. Orn. II. p. 141 (1889); Holland, Ibis, 1890, p. 425 (Buenos Ayres); Frenzel, J. f. O. 1891, p. 123 (Cordoba); Holland, Ibis, 1892, p. 207 (Estancia Espartilla, resident breeds Sept. to Feb.); James, New List Chile B. p. 10 (1892); Huds. Idle Days in Patagonia, p. 125 (1893); Carbajal, La Patagonia, Part II. p. 269 (1900).

Columba (*Zenaida*) *aurita*, Burm. J. f. O. 1858, p. 160 (Mendoza).

GENERAL DESCRIPTION.

Size. — Total length, 9 to 10 inches.

Wing, 5.5 to 6.25 inches.

Tail, 3.75 to 4.5 inches.

Bill, 0.55 to 0.6 inches.

Tarsus, 0.85 to 0.9 inches.

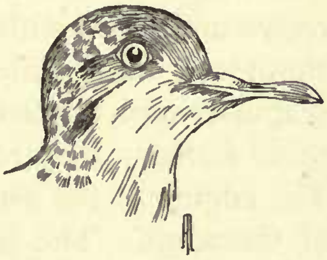
The female is smaller than the male.

Color. — General coloration throughout vinous dove color. Lightest below and darkest above.

Head: Crown of head and occiput grayish, the rest vinous dove color with a metallic blackish blue spot behind the eye, and a larger spot, somewhat elongate in shape below the ear coverts.

Neck vinous dove color, with an area on each side of metallic purple having golden iridescence and reflections.

FIG. 21.



Zenaida auriculata. Profile head and neck. Natural size.

Back and upper parts heavily shaded into olive brown.

Wings: Coverts olive brown like back. There are *many irregular black spots of variable size* on the outer webs of the inner upper wing coverts, and on the outer webs of scapulars and tertials. The quills are dusky brown with narrow lighter brown and buffy edges on their outer webs and tips.

Tail, from above: Two middle feathers like the back, with an indication of a subterminal black bar. The next two gray with a strong brownish tinge and a marked subterminal black bar. The rest grayish with some brownish washing, and subterminal black bars. The tips in these is clear gray, with a tendency to become whitish which grows stronger, culminating in the two outer ones. The outer feather is tipped broadly with white and its outer web is white, breaking the subterminal black bar. The second feather of the tail has simply a broad grayish white tip. From below the tail unopened appears black with a broad white tip.

Lower parts: vinous dove color paling almost to white on the throat; the sides, flanks and under wing coverts are dove gray; and the under tail coverts and abdomen are decidedly buffy in color.

The female is noticeably darker both above, below and on the head, which lacks the gray crown and occiput of the male. "Bill black; part of a red flesh-colour" (Burmeister).

A young male, 7,923 Princeton University Collection, taken at Rio Chico, Patagonia, 12 March, 1898, is in the *first plumage*. This bird is grayer below and darker above than are adults and the vinous dove color of more advanced age is lacking. The feathers on the breast and neck are tipped narrowly with light cinnamon giving a slightly scaled appearance. The upper coverts of the wings are tipped in a like manner. There is a decided whitish area in front of each eye. The feathers of the crown are tipped with bright rufous. This color is also conspicuous on the shoulders, and while the dark spots of the inner upper wing coverts, scapulars and tertials are apparent, they are not well defined and all of these feathers are strongly marked with bright rufous in an irregular way. The edging of the wing quills is rufous or deep buff. The tail is like that of the adult. The blackish blue spots back of the eye and below in ear are not apparent. There are no iridescent areas on the neck. The bird is full grown.

An older bird, also a young male, 8,302 Princeton University collection, taken at Santa Cruz, Patagonia, 15 February, 1898, is much like an adult, but many feathers on the breast, back and shoulders have median silvery white triangular markings. The throat and forehead in this bird are whitish and a few feathers on the crown have the same median markings already referred to. The blackish blue spots behind the eye and below the ear are indicated but are not so conspicuous as in the adult. The iridescent areas of the neck are faintly indicated.

Geographical Range.—South America. From Ecuador southward on the west, and on the east from Fernando de Noronha to Brazil, the Argentine Republic and Patagonia, probably to the Straits of Magellan.

The collections made by Mr. J. B. Hatcher for Princeton University include five of these birds, but there is no adult male bird represented. The description of the adult male is based upon material in the British Museum of Natural History, and that from the Museo de La Plata, and S. Pozzi collections in the Princeton University Museum. Mr. Hatcher in his MSS. notes says of this dove "common along valleys where there is considerable growth of bushes, but not observed on the higher pampas nor in the forests of the Andes."

A single specimen of this bird from the Valle del Lago Blanco, Chubut, November 5, 1901, collected by J. Koslowsky is now in the British Museum.

Skin.	P. U. O. Coll. No.	Sex.	Locality.	Date.	Collector.
Skin.	7,921	♀ *ad.*	Rio Chico, Patagonia.	4 March, 1898.	J.B. Hatcher.
"	7,922	♀ *ad.*	" " "	4 March, 1898.	
"	7,923	♂ *Juv.*	" " "	12 March, 1898.	
"	8,301	♂ *im.*	" " "	12 March, 1898.	
"	8,302	♂ *Juv.*	Vera Cruz, "	25 February, 1898.	

Order RALLIFORMES.

Sharpe, Hand-List Bds., I. p. 93 (1899).

Family RALLIDÆ.

Sharpe, Cat. Birds, Brit. Mus. XXIII. p. 1 (1894); id. Hand-List Bds. p. 93 (1899).

Subfamily *RALLINÆ.*

Sharpe, Hand-List Bds., I. p. 93, (1899).

Genus RALLUS Linnæus.

	Type.
Rallus, Linn. Syst. Nat. I. p. 261 (1766); Sharpe, Cat. Bds. Brit. Mus. XXIII. p. 6 (1894); id. Hand-List Bds. I. p. 93 (1899)	*R. aquaticus.*
Biensis, Pucher. Rev. Zool. p. 278 (1845) . . .	*R. madagascariensis.*
Limnopardalis (nec Cab.), Heine & Reichen. Nomencl. Mus. Hein. p. 320 (1890) . . .	*R. elegans.*

RALLUS ANTARCTICUS King.

Rallus antarcticus, King, Zool. Journ. IV. p. 95 (1828: Straits of Magellan); Des Murs in Gay's Hist. Chil. Zool. I. p. 435 (1847); Scl.

P. Z. S. 1867, p. 333 (Chile); id. & Salv. P. Z. S. 1868, p. 445; iid. Exot. Orn. p. 163, pl. LXXXII (1868); Phil. & Landl. Cat. Av. Chil. p. 38 (1868); Scl. & Salv. Nomencl. Av. Neotr. p, 139 (1873); iid. P. Z. S. 1878, p. 437 (Sandy Point); iid. Voy. Chall. II. Birds, p. 108 (1880); Barrows, Auk, I. p. 276 (1884: Carhué); Withington, Ibis, 1888, p. 471 (Lomas de Zamora); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Straits of Magellan); Scl. & Huds. Argent. Orn. II. p. 148 (1889); Oust. Miss. Sci. Cap Horn Oiseaux, p. 133 (1891: Punta Arenas); James, New List Chil. B. p. 10 (1892); Sharpe, Cat. B. Brit. Mus. XXIII. p. 19 (1894); id. Hand-List B. I. p. 94 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 110 (1901); Phil. An. Mus. Chile, XV. pl. 28 (1902).

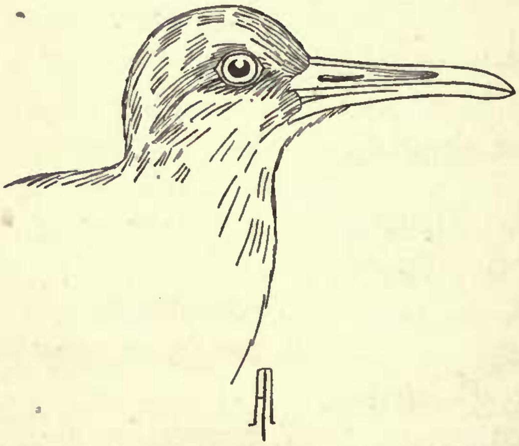
Rallus rufopennis, Gray, List B. Brit. Mus. Part III. p. 116 (1844); Hartl. Naum. 1853, p. 222 (Valdivia).

Ortygometra antarctica, Gray, Gen. B. III. p. 594 (1846).

Rallus uliginosus, Phil. Arch. f. Nat. p. 83 (1858: Santiago); id. & Landb. Cat. Av. Chil. p. 38 (1868).

Aramus antarcticus, Gray, Handl. B. III. p. 59, no. 10420 (1871).

FIG. 22.



Rallus antarcticus. Profile head and neck. Natural size.

GENERAL DESCRIPTION.

Size.—Total length, 7.5 inches.
Culmen, 1.2 inches.
Wing, 3.6 inches.
Tail, 1.7 inches.
Tarsus, 1.35 inches.

Color.—General color above buffy brown striped with dusky brown or black; below lead color, with whitish and buffy brown suffusion.

Head: Crown blackish brown, with each feather edged and tipped with sandy buff. Sides of face lead color. A stripe beginning in front of and above the eye, pale buff almost white at its origin so as to appear as a spot, shading then into deeper buff, this in its turn shading into lead color like that of the sides of the face. Region in front of the eye and lores blackish. This color extends backward below the eye to the region of the ear coverts, where it gradually fades into the lead color of the sides of head.

Throat: White shading into the clear lead color of the foreneck.

Neck: Above and on the sides like the back, each feather blackish, bordered with sandy buff, the edgings becoming more pronounced and broader as the neck joins the body. Below the neck is lead color, at first clear, then shaded with sandy brown as it joins the breast region.

Back: Dusky black, each feather broadly margined with sandy buffy brown. Rump and upper tail coverts like the back, but the black area on each feather comparatively less.

Wing: The scapulars are like the back but the black area on each feather is proportionately less. Wing coverts uniform sandy brown, with a rufescent tinge. Bastard wing, the primary coverts and primaries sooty brown, unmarked; secondaries of a like color, but with faint white tips and one or more broken white bars, and brownish markings becoming on the inner ones like the back and scapulars in color and pattern.

Tail: The feathers are much like those of the back in color and pattern, the brown edging preponderating, however, over the dusky brown center of each feather.

Lower parts: Breast lead color, with a strong suffusion of brown and with grayish white fringes to many of the feathers. Sides and flanks black, each feather strongly barred, and slightly fringed with clear white. Abdomen lead color with sandy buff tips and fringes on each feather. Under tail coverts black, barred and tipped with white. Under wing coverts and axillaries dusky, the coverts broadly tipped and the axillaries both barred and tipped with white.

This description is based on a specimen, sex not indicated, No. 7800 Princeton University collection, taken at Lower Rio Chico, Patagonia, 30 March, 1897. This bird is apparently adult.

The collector's notes describe the iris as "brown." "Upper mandible dark red, lower one bright red; feet and toes dark purple; iris reddish brown" (F. Withington).

Geographical Range.—Argentine Republic, to central Chile and throughout Patagonia.

The only individual of this species that was secured by the expeditions sent out by Princeton University to Patagonia, has been cited above.

	P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
Skin.	7,800.	Not Known.	Lower Rio Chico, Patagonia.	30 March, 1897.	J. B. Hatcher.

A female of this species from the Valle del Lago Blanco, Chubut, collected by J. Koslowsky on November 27, 1901, is now in the collection of the British Museum.

The similarity of this Rail to the Virginia Rail (*R. virginianus*) is noticeable. Almost the same size, this bird is materially different in color, though the pattern of the color areas is much alike in both.

The habits of these small rails have been dealt with by a number of authors and they do not seem to differ greatly from their congeners throughout the world.

Genus LIMNOPARDALIS Cabanis.

	Type.
Limnopardalus, Cab. J. f. O. 1856, p. 428; Sharpe, Cat. Bds. Brit. Mus. XXIII. p. 27 (1894) . . .	*L. maculatus.*
Pardirallus, Bp. C. R. xliii. p. 599 (1856).	*L. maculatus.*
Ortygonax, Heine in Heine & Reichen. Nomencl. Mus. Hein. p. 321 (1890)	*L. rytirhynchus.*
Limnopardalis, Sharpe, Hand-List Bds. I. p. 95 (1899) (= *Limnopardalus*).	

Geographical Range.—Cuba, Trinidad and South America.

LIMNOPARDALIS VIGILANTIS Sharpe.

Rallus rythyrhynchus (nec Vieill), Doering, Expl. al Rio Negro, Zool. Aves, p. 55 (1882: Abundant on the Rios Negro and Colorado); Burm. An. Mus. Nac. Buenos Ayres, III. Part X. p. 246 (1888: Patagonia).

Rallus antarcticus, Sharpe (nec King), P. Z. S. 1881, p. 14 (Tom Bay).

Limnopardalus vigilantis, Sharpe, Cat. B. Brit. Mus. XXIII. p. 31, pl. IV. (1894); id. Hand-List B. I. p. 95 (1899); Salvad. Ann. Mus. Genov. (2) xx. p. 626 (1900: Keppel Isl., Falklands, Aug.).

General description.

Size. — Total length, 15.5 inches.

Culmen, 2.55 inches.

Wing, 5.3 inches.

Tail, 3.0 inches.

Tarsus, 1.85 inches.

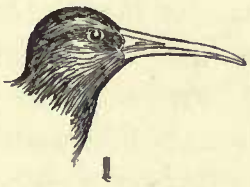
The female is slightly larger than the male.

Color. — General color above olive brown; below slaty lead color. These colors are almost unbroken in their respective areas.

Head: Crown olive brown. On the sides of the face slaty lead color. A superciliary line reaching forward to the base of the upper mandible slaty lead color. The entire area in front of the eye, and a narrow region above and below it, as well as a triangular shaped area behind the eye, olive brown. Eyelids slaty lead color.

Neck: Above olive brown, shading into slaty lead color below. The slaty lead color is more or less suffused with olive brown, particularly on the sides of the neck just back of the head.

Fig. 23.



Limnopardalis vigilantis. Profile of head and neck. ½ natural size.

Back: The feathers of the lower back are mottled and have black bases. Those of the rump are similarly marked.

Wing: The scapulars are marked like the feathers of the lower back and have black bases. The inner secondaries are black with broad margins of olive brown. Quills dusky, with the exposed parts of the outer webs olive brown.

Lower parts: Slaty lead color with more or less olive brown shading, which becomes dusky on the lower flanks. Under tail coverts dusky or blackish with sandy brown edges.

Tail olive brown. "Bill dark green; legs and feet red; iris red" (Dr. Coppinger).

The female is similar to the male in color.

Geographical Range. — Islands of the Straits of Magellan and the Patagonian shores of those waters.

The Princeton Expeditions did not secure this species, as the region where it occurs was not dealt with by the corps of naturalists composing the party. The description given is based on the material in the British Museum of Natural History.

From my studies of this material and the allied forms *L. sanguinolentus*, Swains. and *L. rytirhynchus*, Vieill., I am convinced that they are all three specifically distinct. *L. rytirhynchus* and *L. sanguinolentus* do overlap in their geographical distribution, but their differences in size and color readily distinguish them.

Not touching even the borders of the range of either of the others, *L. vigilantis* in color closely resembles *L. rytirhynchus*, but their great difference in size would readily distinguish them, even if they inhabited the same or adjacent regions. The average total length of *L. rytirhynchus* is about 10.5 inches, while that of *L. vigilantis* is 15.5 inches. *L. sanguinolentus* is intermediate between these two in size, the total length averaging about 12.5 inches, but is essentially different from its two allies in color.

It would be of great interest to know more of the life history of these birds, especially as to whether they are *permanent residents* in the several regions where they occur, or if they are migratory. I suspect that the former of these alternatives will prove to be the condition so far as this part of their life history is concerned, and that their extremes represented by *L. rytirhynchus* on the one hand and by *L. vigilantis* on the other, are but another example, added to the many already known, of the influence of environment on the descendents from a common stock.

Genus ORTYGOPS Heine.

	Type.
Coturnicops, Bp. C. R. XLIII. p. 599 (1856). . . .	*O. noveboracensis.*
Ortygops (nom. emend.), Heine, in Heine & Reichenow, Nomencl. Mus. Hein. p. 320 (1890); Sharpe, Cat. Bds. Brit. Mus. XXIII. p. 126 (1894); id. Hand-List Bds. I. p. 104 (1899).	

Geographical Range.—North America: north to Nova Scotia and Hudson's Bay, west to Utah and Nevada, the Greater Antilles, eastern Mexico. South America: southeastern Brazil; Uruguay to Patagonia. Southeastern Africa. Northern China, to eastern Siberia and Japan.

ORTYGOPS NOTATA (Gould).

Zapornia notata, Gould, Voy. "Beagle," Birds, p. 132, pl. 48 (1841: Rio Plata).

Ortygometra notata, Gray, Gen. B. III. p. 594 (1846).

Porzana notata, Scl. & Salv. P. Z. S. 1868, p. 456; iid. Nomencl. Av. Neotr., p. 140 (1873); Scl. P. Z. S. 1876, p. 255 (Uruguay). Burm. An. Mus. Nac. Buenos Ayres, III. Part X. p. 246 (1888: Patagonia); Scl. & Huds. Argent. Orn. II. p. 155 (1889).

Aramides notata, Gray, Handl. B. III. p. 61, no. 10445 (1871).

Ortygops notata, Sharpe, Cat. B. Brit. Mus. XXIII. p. 121 (1894); id. Hand-list B. I. p. 104 (1899).

GENERAL DESCRIPTION.

Size.—Total length, 5.3 inches.

Culmen, 0.45 inch.

Wing, 3.1 inches.

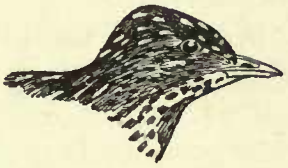
Tail, 2.25 inches.

Tarsus, 0.8 inch.

Color.—General color above chocolate brown mottled and spotted with black and white; below grayish white, mottled on the breast and barred on the sides and flanks with dusky, or blackish markings.

Head: Crown of head darker chocolate brown, with many markings or spots of white. Lores dusky brown, with a whitish streak above. Sides of face and cheeks dusky blackish with numerous white spots.

FIG. 24.



Ortygops notata. Profile of head and neck, showing color pattern. Natural size.

Neck: Chin and upper throat whitish, the throat mottled with dusky brown. The rest of the front of the neck whitish, mottled with the dusky black centers of each feather. Back of the neck darker chocolate brown than back, shading on the sides into the lighter region of the front of the neck.

Back: Chocolate brown, generally mottled with black centers to the feathers and white spots. On the lower back and rump the white spots sometimes assume the form of bars. The upper tail coverts chocolate brown decorated with minute white spots.

Wing: The wing coverts chocolate brown, mottled with blackish centers to the feathers and with white spotting sometimes assuming the form of bars. The inner secondaries chocolate brown, mottled like the back and barred with white. Bastard wing and primary coverts brown, with little or no white marking. Quills dusky brown, the middle secondaries being white on the inner web. When the wing is spread this white portion of the secondaries forms a *definite* white patch varying somewhat in size. Under wing coverts and axillaries white, mottled with brown bases to the feathers.

Tail blackish brown.

Lower parts: Upper breast whitish mottled with dusky brown, or blackish centers to the feathers. Center of breast and abdomen whitish, with dusky brown cross bars.

Sides of body and flanks blackish brown, with narrow white bars and tips on each feather. Under tail coverts blackish with vinous tips.

Geographical Range.—Uruguay and southward into Patagonia.

The Expeditions sent out by Princeton did not obtain specimens of this little known bird. The description given is taken from the type which is in the British Museum and which was collected by the late Charles Darwin, at Rio Plata during the voyage of H. M. S. "Beagle" around the world.

A second individual, an immature bird, was taken at sea off Cape Santa Maria, Uruguay.

Subfamily *FULICINÆ.*

Sharpe, Cat. Bds. Brit. Mus. XXIII. p. 209 (1894); id. Hand-List Birds, p. 109 (1899).

Genus FULICA Linnæus.

Type.

Fulica, Linn. Syst. Nat. I. p. 257 (1766); Sharpe, Cat. Bds. Brit. Mus. XXIII. p. 209 (1894); id. Hand-List Bds. I. p. 109 (1899) . . . . *F. atra.*

Phalaria, Reichenb. Syst. Av. p. xxi. . . . . *F. gigantea.*
Lysca, Reichenb. Syst. Av. p. xxi. . . . . *F. ardesiaca.*
Lupha, Reichenb. Syst. Av. p. xxi. . . . . *F. cristata.*
Lophophalaris, Heine, in Heine & Reichenow, Nomencl. Mus. Hein. p. 317 (1890). . . . . *F. cristata.*

Geographical Range. — Nearly all portions of both continents; the Malay Archipelago and Australia.

FULICA ARMILLATA Vieillot.

Foca de ligas roxas, Azara, Apunt. III. p. 474 (1805).

Fulica armillata, Vieill. N. Dict. d'Hist. Nat. XII. p. 47 (1817: ex Azara); Gray, Gen. B. III. p. 600 (1845); Hartl. Ind. Azara, p. 28 (1847); id. Naum, 1853, p. 222 (Valdivia); Burm. La Plata Reis. II. p. 505 (1861: Mendoza; Rio Paraná); Scl. P. Z. S. 1867, pp. 334, 339 (Chile); id. & Salv. P. Z. S. 1868, p. 465 (Chile: Patagonia); iid. Exot. Orn. p. 115 pl. lviii (1868); iid. Nomencl. Av. Neotr. p. 140 (1873); Durnf. Ibis, 1877, p. 195 (Buenos Ayres); 1878, p. 66 (Buenos Ayres, eggs), p. 401 (central Patagonia, common in the lakes and on the Sengel and Sengelen rivers); Doering, Expl. al Rio Negro, Zool. Aves, p. 55 (1881: abundant on the lagoons in the valleys of the Rios Negro and Colorado); Barrows, Auk, I. p. 277 (1884): Entrerios): Withington, Ibis, 1888, p. 478 (Lomas de Zamora); Scl. & Huds. Argent. Orn. II. p. 157 (1889); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 246 (1888: Rivers of Patagonia and Straits of Magellan); id. Part XI. p. 319 (1890: Rio Chico, Santa Cruz: Deseado: Rio Singuer); Holland, Ibis, 1890, p. 425 (Buenos Ayres); Frenzel, J. f. O. 1890, p. 125 (Cordoba); Oust. Miss. Scient. Cap. Horn. Oiseaux, p. 136 (1898: Rio Gallegos); James, New List Chil. B. p. 80 (1892); Holland, Ibis, 1892, p. 280 (Estancia Espartilla, very common throughout the year, breeds early in Sept.); Sharpe, Cat. B. Brit. Mus. XXIII. p. 218 (1894); Lane, Ibis, 1897, p. 302 (Chile); Schalow, Zool. Jahrb. Suppl. IV. p. 661 (1898; La Serena, Oct.; El Pozo, Lago Llanquihue, Nov.; Susanna Cove, Straits of Magellan, May); Sharpe, Hand-list B. I. p. 180 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 130 (1901).

Fulica chloropoides, King, Zool. Journ. IV. p. 95 (1828: Straits of Magellan); Des Murs in Gay's Hist. Chil. Zool. I. p. 438 (1847); Hartl. Naum. 1853, p. 222 (Valdivia); Leyb. Excurs. Pamp. Argent. p. 54 (1873).

Fulica frontata, Gray, List B. Brit. Mus. Part iii. p. 124 (1844); Hartl. Naum. 1853, p. 222 (Valdivia).

Lysca armillata, Reichenb. Syst. Nat. p. xxi (1852).

Fulica chilensis, Landb. (nec Des Murs) Arch. fur Nat. XXVIII. p. 215 (1862); Phil. & Landb. Cat. Av. Chil. p. 39 (1868).

Fulica leucopyga, Sharpe (nec Wagl. nec Licht) P. Z. S. 1881, p. 14 (Talcahuano).

GENERAL DESCRIPTION.

Size.—Total length, 18 inches.

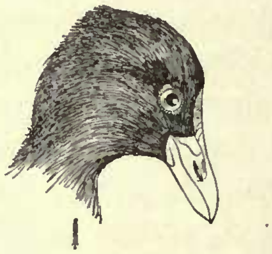
Culmen including frontal shield, 2.25 inches.

Wing, 8.5 inches.

Tail, 2.15 inches.

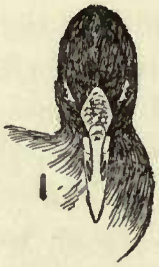
Tarsus, 2.6 inches.

FIG. 25.



Fulica armillata. Profile of head and neck. ⅓ natural size.

FIG. 26.



Fulica armillata. Showing shape of frontal shield. ⅓ natural size.

Color.—General color dark lead, deepest above, paler below.

Head velvety black, throughout.

Neck velvety black, throughout.

Back, lower back, rump and upper tail coverts, deep lead color, with a faint wash of olive.

Wing: Like the back; quills blackish, the first primary having a distinctly white edge to its outer web.

Tail blackish.

Lower parts: Generally deep lead color, a little paler in shade than the back and without the olive washing of that region. The central under tail coverts are deep lead color and the lateral ones pure white.

Princeton University collection, No. 7,803, male adult. Rio Coy, Patagonia, 25 January, 1898, J. B. Hatcher.

The frontal shield is pointed and reaches well back on the forehead. "Bill and shield primrose yellow" (Durnford); "base of upper mandible and a small portion of the shield bright blood red; legs olivaceous with a pale red garter above the knee" (Durnford).

"Bill yellow, with a dark red patch on the culmen; legs olive green; claws brown; iris yellow" (Coppinger).

Geographical Range.—Patagonia and Chile, northward to Bolivia, Argentina, and southern Brazil.

The Princeton Expeditions procured a series of seven of these birds which do not vary greatly from the bird no. 7803 of the collection which formed a basis for the foregoing description.

The colors of the external bare soft parts of birds of this genus and allied genera are subject to very marked modification. They vary much with the age of the individual, seasonal change is also very appreciable and finally sex is another factor to be reckoned with. It is also well known to competent field naturalists that the bills and more especially the frontal shields change very rapidly in color after death and an hour or more often furnishes ample time for the natural color to have been lost. Further field notes made as soon as examples are shot would be of great value.

Immature birds have a tendency to a general lighter color especially on the lower surface. This in its extreme shows fine white tips to each feather on the belly.

An immature male, No. 7,967, taken at Arroyo Eke, Patagonia, 15 April, 1898, has a decided reddish brown intermixture of feathers in the region in front of the eye. This is also apparent on the head, neck and body in a varying degree. The region below the lower eyelid in this bird is decidedly whitish. Nos. 7,964 ♂ im., 7,965 ♂ im. have similar brown washing.

Number 8315, ♂ adult, is darker throughout than the other birds composing this series.

A female adult and nestling of this species has been lately received by the British Museum from the Valle del Lago Blanco, collected by J. Koslowsky on November 20, 1900.

	P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
Skin.	7,963	♂adult.	Rio Chico, Patagonia.	16 March, 1898.	J. B. Hatcher.
"	7,964	♂immature.	" " "	14 March, 1898.	
"	7,965	♂immature.	" Santa Cruz, "	1 March, 1898.	
"	7,966	♂adult.	" " " "	1 March, 1898.	
"	7,967	♂immature.	Arroyo Eke, "	15 April, 1898.	
"	7,803	♂adult.	Rio Coy, "	26 January, 1898.	
"	8,315	♂adult.	" Deseado, "	31 March, 1898.	

FULICA RUFIFRONS Philippi & Landbach.

Fulica leucopyga, Gray (nec Wagl.), Gen. B. III. p. 600 (1845); Burm. Th. Bras. III. p. 390 note (1856: Montevideo); Schl. Mus. Pays-Bas, Ralli, p. 64 (1865: Santiago); Pelz. Reis. Novara, Vög. p. 135 (1865: Chile); Scl. & Salv. P. Z. S. 1868, p. 467 fig. 9 (Chile; Patagonia; Falkland Islands); iid. Nomencl. Av. Neotr. p. 140 (1873); Durnf. Ibis, 1877, p. 42 (Chupat Valley, very common breeds numerously); 1878, p. 66 (note on the nesting), p. 402 (lagoons and pools in the valleys of the Chupat, Sengel and Sengelen); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 247 (1888: Straits of Magellan and Falklands); Scl. & Huds. Argent. Orn. II. p. 157 (1889); James, New List Chil. B. p. 10 (1892); Sharpe, Cat. B. Brit. Mus. XXIII. p. 220 (1894); Schalow, Zool. Jahrb. Supp. IV. p. 667 (1898: Villa Rica, Oct.; La Serena, Oct.).

Fulica leucopygia, Hartl. J. f. O. 1853, Extrah. p. 84; Withington, Ibis, 1888, p. 471 (Lomas de Zamora); Oust. Miss. Scient. Cap Horn, Oiseaux, p. 135 (1891).

Fulica chloropoides, Abbott (nec King), Ibis, 1861, p. 157 (Stanley Harbour, Falkland Islands).

Fulica rufifrons, Phil. & Landb. Arch. f. Nat. XXVIII. p. 223 (1862); iid. Cat. Av. Chil. p. 39 (1868); Leybold, Excurs. Pamp. Arjent. p. 20 (1873); Sharpe, Hand-List B. I. p. 110 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 131 (1901).

GENERAL DESCRIPTION.

Size.—Total length, 14 inches.

Culmen including frontal shield, 2.2 inches.

Wing, 6.5 inches.

Tail, 2.4 inches.

Tarsus, 2.2 inches.

Color.—The color of this bird is almost identical with that of *Fulica armillata*,[1] Vieill, but the birds are readily distinguished both by their difference in size, *and by the absence of a white outer edging to the first primary in Fulica rufifrons.*

Geographical Range.—Falkland Islands, Patagonia, Chile, southern Brazil and Argentina.

This species was not secured by the naturalists sent out by Princeton University to Patagonia. The descriptions given are based on material in the British Museum of Natural History.

FULICA LEUCOPTERA Vieillot.

Focha, Azara, Apunt. III. p. 472 (1805).

Fulica leucoptera, Vieill. N. Dict. d'Hist. Nat. XII. p. 48 (1817: ex Azara); Gray, Gen. B. III. p. 600 (1845); Hartl. Ind. Azara, p. 28 (1847); Burm. La Plata Reise, II. p. 505 (1861: Paraná); Scl. & Salv. P. Z. S. 1868, p. 468 (Paraná); iid. Exot. Orn. p. 119, pl. IX (1868); Gray, Handl. B. III. p. 68, no. 10520 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 140 (1873); Durnf. Ibis, 1877, p. 195, 1878, p. 67 (Buenos Ayres, eggs); Doering Expl. al Rio Negro, Zool. Aves, p. 55 (1882: Rios Negro and Colorado); White, P. Z. S. 1883, p. 43 (Cordoba); Barrows, Auk, I. p. 277 (1884: Carhué); Withington, Ibis, 1888, p. 472 (Lomas de Zamora); Scl. & Huds. Argent. Orn. II. p. 158 (1889); Ridgw. Proc. U. S. Nat. Mus. XII. p. 137 (1889: Sandy Point); Holland, Ibis, 1890, p. 425 (Buenos Ayres); Oust. Miss. Scient. Cap Horn, Oiseaux, p. 134 (1891: Beagle Canal); Frenzel, J. f. O. 1891, p. 125 (Cordoba); James, New List Chil. B. p. 10 (1892); Holland, Ibis, 1892, p. 210 (Estancia Espartilla, common throughout wet years, in immense numbers in winter, breeds early in Oct.); Sharpe, Cat. B. Brit. Mus. XXIII. p. 224 (1894); Lane, Ibis, 1897, p. 302 (Sacaya); Schalow. Zool. Jahrb. Suppl. IV. p. 667 (1898: Lago Llanquihue, Nov.); Sharpe, Hand-List B. I. p. 110 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 626 (1900: Uscinaia, June); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 132 (1901).

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[1] See ante, page 52, this volume.

Fulica gallinuloides, King, Zool. Journ. IV. p. 96 (1828: Straits of Magellan); Scl. P. Z. S. 1878, p. 291; Gibson, Proc. Phys. Soc. Edinb. 1876, 78, p. 184.

Fulica leucopyga, Wagl. Isis, 1831, p. 516.

Fulica stricklandi, Hartl. J. f. O. 1853, Extrah. p. 86; Scl. P. Z. S. 1867, p. 339.

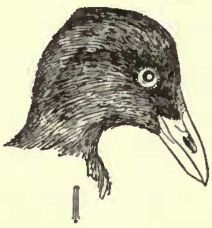
Fulica chloropoides, Phil. & Landb. (nec King) Arch. f. Nat. XXVIII. p. 218 (1862); iid. Cat. Av. Chil. p. 39 (1868).

General description.

Size.—(Male, P. U. C. No. 7,962.) Total length, about 14.50 inches.
Culmen including frontal shield, 1.80 inches.
Wing, 8.1 inches.
Tail, 2.40 inches.
Tarsus, 2.3 inches.

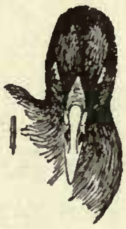
Color.—(Male cited above). The general coloration of this species resembles closely that of *Fulica armillata* Vieill., but the olive washing of the upper parts is clearer and the lower are decidedly lighter and more slaty. The outer feathers of the bastard wing are white, as is the outer edge of the first primary. *The outer secondaries have broad white tips.*

Fig. 27.



Fulica leucoptera. Profile of head and neck. ⅓ natural size.

Fig. 28.



Fulica leucoptera. Showing shape of frontal shield.

These characteristics and the size and shape of the frontal shield, as well as the difference in size, will readily distinguish the species from its congeners in Patagonia.

Dr. Hahn gives the following data as to the color of the external soft parts: "Frontal shield chrome yellow; bill chrome yellow with the tips of the mandibles greenish; feet very pale sea green, with the webs, joints, and claws black; iris fiery red."

Geographical Range. — Patagonia, and Chile northward to southern Brazil, Peru and Bolivia.

In general appearance this species is much like *Fulica americana*, Gmel., but the shape of the frontal shield, its color as well as that of the bill, both mandibles being entirely yellow, together with the general darker coloration of the entire plumage, readily distinguish *F. leucoptera*, Vieill., from *Fulica americana*, Gmel.

The Princeton Expeditions secured a small series (4) of this species. Two birds obtained in January, both females, are in worn breeding plumage, and beginning to moult, many of the new feathers of the upper parts contrasting sharply with the worn and faded condition of the feathers of that region and of the wings. Another bird, also a female taken in May, presents a similar condition of moult, while a bird taken March 16, a male, is in fine unworn plumage and has the feathers of the breast and lower parts generally, strongly tipped or fringed with white; there is a strong admixture of similar feathers on the throat, sides of the neck and chin. These fringes extend well up on the sides of the face and a few are apparent on the occiput. This bird appears to be a young bird of the year which after having *moulted* the *first plumage* is assuming the adult dress. The white tips to the outer secondaries are very narrow in this bird No. 7,962.

	P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
Skin.	7,801	♀ adult.	Rio Coy, Patagonia.	22 January, 1898.	J. B. Hatcher.
"	7,802	♀ adult.	Palaike, "	18 January, 1898.	"
"	7,961	♀ adult.	Arroyo Eke, "	13 May, 1898.	"
"	7,962	♂ y. o. y.	Rio Chico, "	16 March, 1898.	"

Order PODICIPEDIDIFORMES.

Sharpe, Classif. Birds, p. 71 (1891); id., Hand-List Bds. I. p. 113, (1899).

Family PODICIPEDIDÆ.

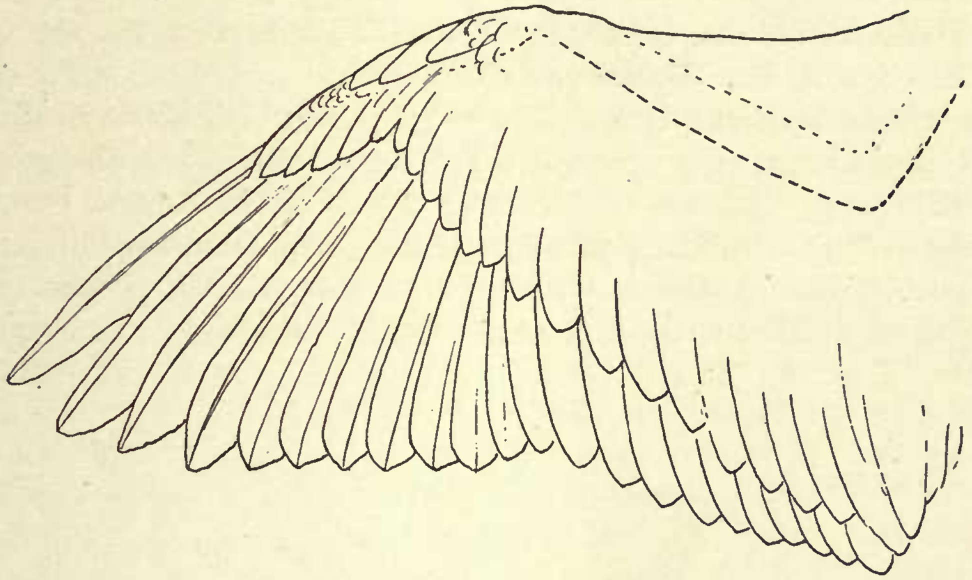
Ogilvie-Grant, Cat. Birds, Brit. Mus. XXVI. p. 502 (1898); Sharpe, Hand-List Bds. I. p. 113 (1899).

Genus PODICIPES Latham.

	Type.
Colymbus [Brisson, Orn. vi. p. 33 (1760)]; Illiger, Prodromus, p. 281 (1811)	*P. cristatus.*
Podiceps, Lath. Suppl. Gen. Syn. p. 294 (1784)	*P. cristatus.*
Dytes, Kaup, Nat. Syst. p. 41 (1829)	*P. auritus.*
Pedetaithya, Kaup, Nat. Syst. p. 44 (1829)	*P. griseigena.*
Proctopus, Kaup, Nat. Syst. p. 49 (1829)	*P. nigricollis.*
Lophaithyia, Kaup, Nat. Syst. p. 72 (1829)	*P. cristatus.*
Dasyptilus, Swains. Class. B. ii. p. 369 (1837)	*P. poliocephalus.*
Poliocephalus, Selby, Cat. Gen. & Subgen. Types Aves, p. 47 (1840)	*P. poliocephalus.*
Pedeaithyia, G. R. Gray, Gen. Bds. iii. p. 632 (1846); id. Hand-List Bds. iii. p. 93 (1871)	*P. griseigena.*
Lophaethyia, L. Agassiz, Nomen. Zool., Index Universalis, p. 620 (1848)	*P. cristatus.*
Tachybaptus, Reichenb. Av. Syst. pl. ii. (1849); id. Nat. Syst. Vog. p. iii (1852)	*P. fluviatilis.*
Otodytes, Reichenb. Nat. Syst. Vög. p. iii. (1852)	*P. nigricollis.*
Rollandia, Bonap. C. R. xlii p. 775 (1856)	*P. rollandi.*
Centropelma, Sclater & Salvin, Exotic Orn. ii. p. 189 (1869)	*P. micropterus.*
Calipareus, Bonap. 1855; fide Gray, Hand-List, iii. p. 94 (1871)	*P. calipareus.*
Colymbetes, Heine in Heine & Reichenow, Nomencl. Mus. Hein. p. 364 (1890)	*P. poliocephalus.*
Podicipes, Ogilvie-Grant, Cat. Bds. Brit. Mus. xxvi. p. 502 (1898); Sharpe, Hand-List Bds. I. p. 113 (1899) = *Podiceps.*	

Geographical Range. — The world at large.

FIG. 29.



Podicipes dominicus. Female. Showing relative length of primaries and secondaries. From material in the American Museum of Natural History. Natural size.

PODICIPES DOMINICUS (Linnæus).

Le Grebe de riviere de S. Domingue, Briss. Orn. VI. p. 64, pl. v. fig. 2 (1760).

Colymbus dominicus, Linn. Syst. Nat. I. p. 223 (1766) ex Briss.; Licht. Verz. Doubl. p. 87 (1823: Montevideo).

Le Castagneux de Saint-Domingue, Buff. Hist. Nat. Ois. VIII. p. 248 (1781).

White-winged Grebe, Lath. Gen. Syn. III. pt. i. p. 291 (1785).

Podiceps dominicus, Lath. Ind. Orn. II. p. 785 (1790); Gray, Gen. B. iii. p. 633 (1846); Burm. J. b. O. 1860, p. 268 (Mendoza); id. La Plata Reis. II. p. 521 (1861); Schl. Mus. Pays-Bas, VI. Urinat. p. 47 (1867: Chile); Baird, Brewer & Ridgw. Water Birds, N. Amer. II. p. 438 (1884); Burm. An. Mus. Nac. Buenos Aires, III. pt. X. p. 249 (1888: Patagonia).

Colymbus dominicensis, D'Orb. in Ramon de la Sagra Hist. Cuba, Ois. p. 282 (1839). Scott, Auk, VIII. p. 354 (1891) (Jamaica breeding September).

Tachybaptus dominicus, Bonap. C. R. xlii. p. 775 (1856); Scl. & Salv.

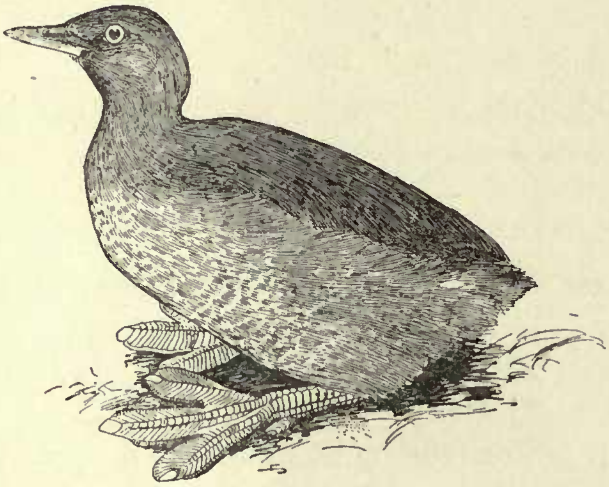
Nomencl. Av. Neotr. p. 150 (1873); Durnf. Ibis, 1876, p. 165 (Montevideo); White, P. Z. S. 1882, p. 629 (Punta Lara, Buenos Ayres).

Sylbeocyclus dominicus, Coues, Proc. Acad. Philad. 1862, p. 232; Scl. & Salv. Exotic Orn. II. p. 190 (1869).

Tachybaptes dominicus, Durnf. Ibis, 1877, p. 203 (Buenos Ayres); 1878, p. 405 (Chupat river: Sengelen & Sengel Valleys); Withington Ibis, 1888, p. 473 (Lomas de Zamora); Scl. & Huds. Argent. Orn. II. p. 205 (1889); Holland Ibis, 1892, p. 214 (Argentine Republic).

Podicipes dominicus, Grant, Cat. B. Brit. Mus. XXVI. p. 520 (1898); Sharpe, Hand-List B. I. p. 113 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 134 (1901).

FIG. 30.



Podicipes dominicus. Male. From material in the American Museum of Natural History. ½ natural size.

GENERAL DESCRIPTION.

Size (adults in breeding plumage).—Total length, 8.5 inches.

Culmen (from feathers of forehead), 0.8 to 0.9 inches.

Wing, 3.70 to 3.85 inches.

Tarsus, 1.15 to 1.25 inches.

Color (adults in breeding plumage).—General color of upper parts brownish black, with a faint greenish gloss; of lower parts greyish on the neck, becoming shining polished white on the breast and belly, mottled somewhat with dusky.

Head: Forehead and crown black with a greenish gloss; sides of head ashy grey.

Neck: Upper part blackish with a green gloss, strongest at the portion nearest the head. Chin and throat dull sooty black. Rest of the neck greyish ash, shading into brownish grey in the region where the neck joins the body.

Back: Brownish black with a slight greenish gloss; sides of the lower back and rump white.

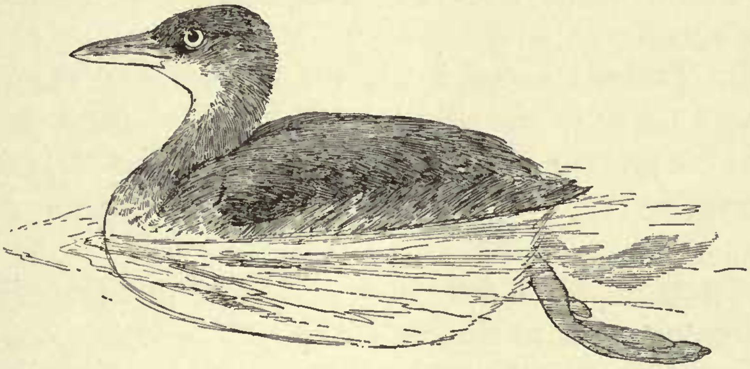
Wing: General color like the back. The inner webs of the outer primaries chiefly white, increasing so that the inner primaries have white inner webs. The secondaries are white with a brown band on the margin of the outer web. Under wing-coverts white.

Lower parts as described, with the chest, sides and flanks washed with shining reddish brown. The thighs and vent as well as the under tail coverts are dusky.

Tail: Like the back but more dusky.

"Iris orange; bill black with whitish tip; feet black tinged with greyish." (George N. Lawrence.)

FIG. 31.



Podicipes dominicus. Immature female. From material in the American Museum of Natural History. ½ natural size.

Adults at other than breeding season, have the top of the head, neck and upper parts as well as the foreneck and chest much browner, the chin and throat being *white*.

Geographical Range.—The Greater Antilles, Southern Texas, Central America and South America to Patagonia.

The Princeton Expeditions did not procure this species in Patagonia and the description is based on material in the British Museum of Natural History as well as in the Academy of Sciences in Philadelphia, and in the American Museum of Natural History, New York.

"Mr. Gosse found nests with four eggs in August, but as the birds had almost assumed their full breeding plumage in January, I conclude that the record of August nesting must be that of a second brood.

"At Priestmans River (Jamaica, W. I.) January 7, 1891, I found this a rather common species apparently mated. A male taken in full plumage had the testes as large as the largest buckshot. At the same locality, January 20, 1891, a male taken (10485) is apparently in the plumage of the first year. No black about the throat and much lighter throughout in color than birds in full plumage. . . . The sides were dull greenish yellow. At the same locality on January 23, 1891, I took four individuals in a shallow pond. Three were females and one a male. The females all appeared about to breed. In one the yolk was almost or quite developed and the first egg would have been laid in a week at latest. The other two would have bred in the next four or five weeks. These four birds were all in full plumage. Many individuals were seen beside those that were captured, and the birds were abundant at this point though of course local in distribution.

"From Mr. Taylor's notes I add the following: 'Three eggs in my possession were taken in the month of September, 1888, from a pond at "New Works" a few from Linstead in St. Calhumus'" (Jamaica, W. I.) (Scott, Observations on The Birds of Jamaica, West Indies. Auk, VIII. 4, pp. 354, 355, 1891.)

The above details of the breeding period of this grebe in a restricted geographical range seem to show a prolonged breeding season, from late January to September; or it may be more probably a matter of individual variation as to the breeding time.

Mr. Frank M. Chapman in the Bulletin of the American Museum of Natural History, Vol. XII. p. 255, December 1899, has described two geographical races of *Podicipes dominicus* which he discriminates as being the mainland representatives of this little grebe. Under the head of *Colymbus dominicus brachyrhynchus*, a bird from Matto Grosso, Brazil, (No. 34872, Coll. Am. Mus. Nat. Hist., male, Chapada, Matto Grosso, Brazil, September 19, 1883. Collected by H. H. Smith), being discriminated from the insular form as having a bill much shorter and more slender,and with less fuscous color on the sides and flanks.

In addition a race is described from Texas (based on No. 11. Coll. of George B. Sennett, male, Lomita Ranch, Lower Rio Grande, Texas, April 27, 1878. Collected by George B. Sennett), which is characterized as being similar to *Colymbus dominicus*, but with shorter wings and bill, and having less fuscous on the sides and flanks as well as being whiter on the underparts. Through the kindness of the authorities in the American Museum I have examined both of these types and conclude that they present sufficient valid characteristics to discriminate them from the insular form; but inasmuch as I have been unable to examine specimens from Patagonia, I must refer the bird from that region to *Podicipes dominicus*, though it seems probable that it will be found to approach, if not to be the same as, the *Colymbus dominicus brachypterus* of Chapman.

PODICIPES AMERICANUS Garnot.

Podiceps americanus, Garn. Voy. Coq. Zool. I. p. 599 (1826: Chile); Gray, Gen. B. III. p. 633 (1846); Des Murs in Gay's Hist. Chil. Zool. I. p. 465 (1847); Schl. Mus. Pays-Bas, VI. Urinat. p. 42 (1867: Chile); Gray, Hand-List B. III. p. 95, no. 10769 (1871); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 235 (1891).

Podiceps chiliensis, Garn. Voy. Coq. Zool. I. p. 601 (1826: Concepcion); Gray, Gen. B. III. p. 633 (1846).

Podiceps albicollis, Less. Traité d'Orn. p. 594 (1831); Puch. Mag. de Zool. 1851, p. 571.

Podiceps chilensis, Gould, Voy. 'Beagle,' Birds, p. 137 (1841: Buenos Ayres); Gay, Hist. Chil. Zool. I. p. 464 (1847); Reichenb. Syst. Av. Natatores, pl. 13. fig. 750 (1848); Scl. P. Z. S. 1867, p. 340; Gray, Hand-List B. III. p. 94, no. 10767 (1871).

Podiceps rollandi, Gould, (nec Quoy et Gaim.) Voy. 'Beagle,' Birds, p. 137, part (1841: near Straits of Magellan and eastern coast of Chiloe); Fraser, P. Z. S. 1843, p. 119 (Chile); Gray, List B. part iii. p. 151 part (1844); Des Murs in Gay's Hist. Chil. Zool. I. p. 463 (1847); Pelz. Reise Novara. Voy. p. 140 (1865: Chile); Scl. P. Z. S. 1867, p. 340; Scl. & Salv. Ibis, 1868, p. 189 (Straits of Magellan);

iid. P. Z. S. 1868, p. 146 (Conchitas); iid. Exot. Orn. II. p. 190, part (1869); Newt. Ibis, 1869, p. 241, note (Halt Bay); Scl. & Salv. t. c. p. 284; Cunn. Nat. Hist. Str. Magell. pp. 222, 348 (1871); Huds. P. Z. S. 1872, p. 549 (Rio Negro); Scl. & Salv. Nomencl. Av. Neotr. p. 150, part (1873); Durnf. Ibis, 1877, p. 45 (Chupat river); Gibson, Ibis, 1880, p. 164 (breeding habits); Sharpe, P. Z. S. 1881, p. 17 (S. Chile; Str. Magellan: Patagonia); White, P. Z. S. 1882, p. 629 (Alto Parana, Paraguayan coast), 1883, p. 43 (Cosquin, Cardova); Salv. t. c. p. 432 (Talcahuano); Barrows, Auk, I. p. 317 (1884: Lower Uruguay); Scl. & Hudson, Argent. Orn. II. p. 204 (1889); Graham Kerr, Ibis, 1890, p. 358 (Rio Pilcomayo); Oust. Sci. Miss. Cap Horn, Oiseaux, p. 233, part (1891); Scl. Ibis, 1891, p. 16 (Argentine Republic); Graham Kerr, Ibis, 1892, p. 151 (Pilcomayo); Holland, t. c. p. 214 (Estancia Espartilla); Schalow, Zool. Jahrb. Suppl. IV. p. 651 (1898: Llanquihue).

Rollandia micra, Bonap. C. R. xlii, p. 775 (1856).

Tachybaptus americanus, Bonap. tom. cit. p. 775 (1856).

Tachybaptus chilensis, Bonap. tom. cit. p. 775 (1856).

Podiceps rollandii, Leybold (nec Q. & G.) Excurs. Pampas Argentinas, p. 20 (1873).

Podiceps leucotis, Tacz. P. Z. S. 1874, p. 563 (Central Peru).

Podicipes rollandi, Lane (nec Q. & G.), Ibis, 1897, p. 313 (Chile).

Podicipes americanus, Grant, Cat. B. Brit. Mus. XXVI. p. 524 (1898); Sharpe, Hand-List B. I. p. 114 (1899); Salvad. Ann. Mus. Genov. (2) xx. p. 633 (1900: Punta Arenas, June); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 135, pl. XI. fig. 8 (1901).

GENERAL DESCRIPTION.

Size (adults in breeding plumage).—Total length, about 11.5 inches.

Culmen (from feathers of forehead), 0.65 to 0.85 inches.

Wing, 4.3 to 4.5 inches.

Tarsus, 1.4 inches.

Color (adult in breeding plumage).—General color above, black with some greenish gloss; below, except the neck, dull grey with a strong admixture of rufous, and of glossy silk texture.

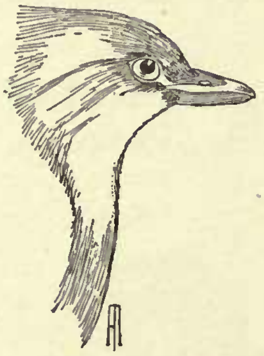
Head: Black, with green gloss and an admixture of dull rufous on the forehead, and crown, the feathers of which are lengthened forming a crest. The elongated feathers of the sides of the crown are white at their bases and have black tips. These feathers partially hide the pure white ear coverts.

Neck: Black of a dull sooty character throughout; some greenish gloss on the upper part and with an appreciable admixture of sandy rufous caused by the tips of each feather.

Back: Black, with a strong greenish gloss, each feather being tipped and edged with sandy brown.

Wing: In general the closed wing is colored like the back. The primaries dark ash, white toward the basal half of the inner web. The amount of white increases on the inner webs, becoming almost entirely white on the inner primary. The secondaries are pure white, except the outermost and several of the innermost which are ashy brown along the shafts and at the extremities. The lower wing coverts are white.

Fig. 32.



Podicipes americanus. 7807. Princeton University Collection. Adult female. Profile of head and neck. ½ natural size.

Tail: Like the back in color.

Lower parts dull grey, with a strong admixture of rufous and dusky, the whole of silky gloss texture. On the belly and the region of the vent the dusky admixture has a more or less barred appearance. The feathers of the sides and flanks are most strongly marked with bright rufous and have dusky tips. The above description is based on an adult female No. 7807 Princeton University Collection, taken at Cape Fairweather, Patagonia, 7 February, 1898.

"Iris red; bill black; legs and toes slate color." (H. Whiteley.)

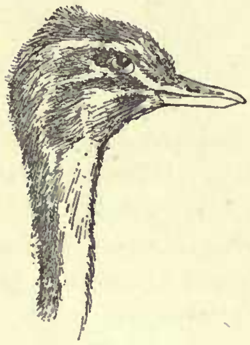
Dr. Coppinger says the feet are "grey, dark grey, or olive green."

When not in breeding plumage the adult birds are similar. There is however much less elongation to the crown feathers, the chin and throat are pure white, and the neck is otherwise snuff brown, both above and below. The crown of the head is black with a green gloss, the ear coverts are white obscured somewhat by the black tips of the feathers on the sides of the head. The feathers of the crown are edged and tipped with sandy brown. The lower parts, except the neck, are dull whitish with a vinous tinge strongest on the sides and breast.

This description is taken from an adult female, no. 7809, Princeton University Collection obtained at Rio Gallegos, Patagonia, May 21, 1896.

Geographical Range. — Central and Southern South America, Peru, Argentine Republic and Uruguay to the Straits of Magellan.

FIG. 33.



Podicipes americanus. 8327. Princeton University Collection. Profile of head of young.

A young bird, no. 8327 Princeton University Collection, taken at Arroyo Eke, Patagonia, 14 April, 1898, has the following characteristics. The entire body, including the wings, and the lower neck where it joins the breast is in a plumage very like that of the non-breeding period of the adult. The bird has evidently fully completed a moult from the down stage for the parts spoken of, and though the neck and head, about to be described in detail, have also gone through a similar moult, they still retain a semi-down kind of feathering.

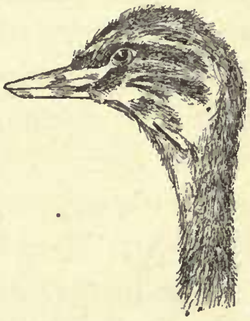
The color of the neck from the breast to the head is deep isabelline, the throat and chin pure white. There is a central crown stripe of sandy rufous, extending well on to the occiput. This is bounded by a rather broader black stripe on each side. These stripes are defined in their turn by superciliary stripes that are bright rufous where they begin to show on the forehead and gradually they become lighter until they are concolorous with the hind neck. There is a narrow black stripe beginning on the forehead and reaching back above the eye, becoming broader and less well defined behind. The forehead and lores are sandy brown. Below the eye another black stripe starts at the angle of the mouth, proceeding backward to the region of the ear coverts. Back of the eye an isabelline stripe divides the upper and lower black eye stripes. Below the lower black eye stripe is another light stripe, pale rufous where it originates at the mouth and becoming isabelline or almost white posteriorly. Very narrow black stripes define the line of the jaws on each side of the throat for about half an inch.

A young bird, almost full grown, but in the down plumage throughout, No. 7808 Princeton University Collection, taken at Cape Fairweather, Patagonia, 7 February, 1898, is, I suspect, one of a brood of young belonging to the adult female No. 7807, described. The down is marked off into color areas on the body much as in the adult. The upper parts are dusky or blackish, with sandy and rufous brown fringing to the down feathers. The sides and flanks are much like the back, but the fringing to the feathers is greyer. The region about the vent is similar to the sides. The abdomen, breast and chest are white shading into the color of the sides and flanks.

The neck and head are striped longitudinally with, rufus, blackish and white stripes, except on the back of the neck which is dull black, much like the back, and with some faint sandy brown fringing to the down feathers.

The Princeton University Collections contain a series of four of these birds. It is evident that nesting must occur in the vicinity of Cape Fairweather, Patagonia, late in December and that the exact time of breeding varies somewhat in different parts of the area under consideration.

FIG. 34.



Podicipes americanus. 7808. Princeton University Collection. Profile of head of young bird still in down plumage.

	P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
Skin.	7807	♀ Adult (breeding).	Cape Fairweather, Patagonia.	7 February, 1898.	J. B. Hatcher.
"	7808	♂ Young in down.	Cape Fairweather, Patagonia.	7 February, 1898.	"
"	7809	♀ Ad. winter plumage.	Rio Gallegos, Patagonia.	21 May, 1898.	"
"	8327	♀ Young of year.	Arroyo Eke, Patagonia.	14 April, 1898.	"

This grebe is apparently a permanent resident even as far south as Sandy Point, for Dr. Cunningham speaks of it as follows under head of June 8th, the mid-winter of Patagonia: "A specimen of a curious little grebe (*Podiceps rollandi*), very common in the Strait, but difficult to shoot on account of its activity in diving, was in addition procured, being found by one of the officers frozen into the ice of a small stream." (Nat. Hist. Strs. Mag., p. 222, 1871.) The party were ashore at Sandy Point on this day, and the bird referred to as *Podiceps rollandi* was *Podicipes americanus*, *P. rollandi*, so far as known, being restricted to the Falkland Islands.

Of the American grebe as he met with it in Patagonia Mr. J. B. Hatcher writes (MSS. notes): "Abundant in marshes and streams all over Patagonia, and of the same general habits as the "hell diver (*P. podicipes*)."

"In cruising about the bay (Halt Bay) we saw numerous individuals of a little grebe, the *Podiceps rollandi*, common in the Strait and Channels, but very difficult to shoot, on account of the rapidity with which it dives, and the impossibility of predicting in what direction it will come up. One was at length shot, and I was struck by the exquisite ruby red color of the eye. They possess an exceedingly unpleasant fishy odour, which becomes very perceptible in the process of skinning them." (Cunn. Nat. Hist. Str. Magell., p. 348, 1871.)

The bird referred to by Cunningham as *Podiceps rollandi* is undoubtedly *Podicipes americanus*.

PODICIPES ROLLANDI Gould.

Podiceps rolland, Quoy & Gaim. Voy. Uranie, p. 133, pl. 36 (1824: Falkland Islands).

Podiceps rollandi, Gould, Voy. 'Beagle,' Birds, p. 137, part (1841: Falkland Isl.); Gray, List B. part iii. p. 151, pt. (1844); id. Gen. B. III. p. 633 (1846); Reichenb. Syst. Av. Natatores, pl. 13. figs. 751–752 (1848); Gould, P. Z. S. 1859, p. 98 (Falkland Isl.); Scl. P. Z. S. 1860, p. 389; Abbott, Ibis, 1861, p. 162; Scl. & Salv. Exot. Orn. II. p. 190 part (1869); iid. Nomencl. Av. Neotr. p. 150 (1873); Oust. Sci. Miss. Cap Horn, Oiseaux, p. 233, part (1891).

Rollandia leucotis, Cuv., teste Bonap. C. R. xlii. p. 775 (1856).

Podiceps rollandii, Schl. Mus. Pays-Bas, Urinat. p. 42 (1867: Falkland Isl.).

Podiceps leucotis, Cuv.; teste Gray, Hand-List B. III. p. 94, no. 10755 (1871).

Podicipes rollandi, Grant, Cat. B. Brit. Mus. XXVI. p. 526 (1898); Sharpe, Hand-List B. I. p. 114 (1899).

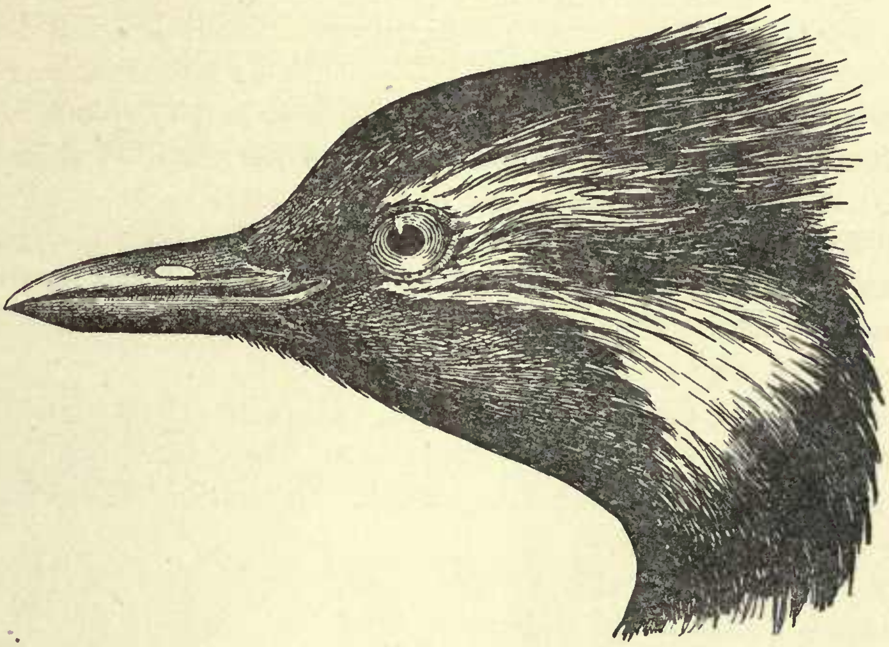
GENERAL DESCRIPTION.

Size.—Total length, about 14 inches.

Culmen (from feathers on forehead), 1 to 1.2 inches.
Wing, 5.3 to 5.5 inches.
Tarsus, 1.8 inches.

Color (adults in breeding plumage).—General coloration like that of *P. americanus* except the lower parts (breast and belly) which are much brighter, being rufescent chestnut. The green gloss of the upper parts is also much more pronounced.

FIG. 35.



Podicipes rollandi. Profile of head. Natural size. Adult male. From specimen in the British Museum.

Geographical Range.—The Falkland Islands.

The much larger size and the chief difference in color noted above will serve at once to discriminate *P. rollandi* from its close ally *P. americanus.* The measurements and description given are based on material in the British Museum of Natural History, for the Princeton Expeditions did not explore the Falkland Islands. In view of the lack of material it is not possible to notice the non-breeding plumage of this grebe, but it seems probable that it does not differ greatly from the non-breeding state of plumage, occurring in *P. americanus*. The breeding season of *P. rollandi* is much later than that of *P. americanus*, or at least extends over a longer period, as individuals in the British Museum collections taken in June are still in breeding plumage.

PODICIPES CALIPAREUS (Lesson).

Podiceps calipareus, Less. Voy. Coq. Zool. I. p. 727, pl. XLV (1826: Falkland Isl.); Gould. P. Z. S. 1859, p. 98; Scl. P. Z. S. 1860, p. 389; Abbott, Ibis, 1861, p. 162 (E. Falkland Isl.); Pelz. Reise Novara, Vög. p. 140 (Chile); Scl. P. Z. S. 1867, p. 340 (Chile); Durnf. Ibis, 1877, p. 45 (Chupat River), 1878, p. 405 (Central Patagonia); Graham Kerr, Ibis, 1890, p. 358 (Rio Pilcomayo); Scl. P. Z. S. 1891, p. 137 (Tarapacá).

Podiceps occipitalis, Garn. Ann. Sci. Nat. VII. p. 50 (1826: Falkland Isl.); Gray, Gen. B. III. p. 633 (1846); Schl. Mus. Pays-Bas, VI. Urinat. p. 41 (1867: Falkland Isl., Chile); Oust. Sci. Miss. Cap Horn, Oiseaux, p. 317 (1891).

Podiceps kalipareus, Gould, Voy. 'Beagle,' Birds, p. 136 (1841: Bahia Blanca: Falkland Isl.); Fraser, P. Z. S. 1843, p. 119 (Valparaiso Bay); Gray, List B. part iii. p. 150 (1844); id. Gen. B. III. p. 633 (1846); Des Murs in Gay's Hist. Chil. Zool. I. p. 464 (1847); Yarrell; P. Z. S. 1847, p. 55 (egg); Reichenb. Syst. Av. Natatores, pl. 11. figs. 69, 70 (1848); Gray, Hand-List B. III. p. 94 no. 10756 (1871), Leybold, Excurs. Pampas Argentinas, p. 20 (1871).

Poliocephalus occipitalis Bonap. C. R. xlii. p. 775 (1856).

Podiceps. caliparæus, Scl. & Salv. Exot. Orn. II. p. 190 (1869); iid. P. Z. S. 1869, p. 158 (Tungasuca); iid. Nomencl. Av. Neotr. p. 150 (1873); White, P. Z. S. 1883, p. 43 (Cosquin, Cordova); Scl. & Huds. Argent. Orn. II. p. 204 (1889); Schalow. Zool. Jahrb. Suppl. IV. p. 651 (1898: Talcalmano; Valparaiso).

Podiceps caliparius, Scl. & Salv. Ibis, 1869, p. 284 (Chiloe); Cunn. Nat. Hist. Str. Magell. p. 339 (1871).

Podiceps calliparius, Scl. & Salv. P. Z. S. 1879, p. 641 (Potosi, Bolivia).

Podicipes calipareus, Lane, Ibis, 1897, p. 313 (Lake Huasco); Grant, Cat. B. Brit. Mus. XXVI. p. 536 (1898); Sharpe, Hand-List B. I. p. 114 (1899).

General description.

Size. — Total length, about 10.5 inches.

Culmen (from feathers on forehead), 0.75 to 0.80 inches.

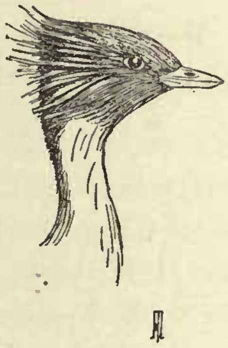
Wing, 5.2 to 5.5 inches.

Tarsus, 1.65 inches.

Color (adults in breeding plumage). — General color above dark slaty grey; lower parts glossy white, with the sides and flanks shaded with dark slate color.

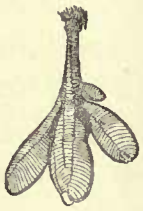
Head: Forehead and crown grey mouse-brown, occiput deep black. The superciliary feathers, the cheeks and the ear coverts dull golden straw color, all having together with the feathers of the crown, hair-like filaments or tips which form a ruff-like hood.

Fig. 36.



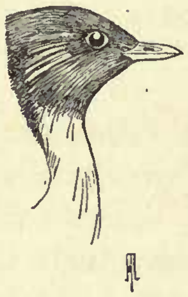
Podicipes calipareus. Profile of head and neck. Adult male. P. U. O. C. 8829. ⅓ natural size.

Fig. 37.



Podicipes calipareus. Detail of foot. ⅓ natural size.

Fig. 38.



Podicipes calipareus. Profile of head and neck. Adult female. ⅓ natural size.

Neck: Above deep black shading into lead or slate on the sides and being pure white below, except on the chin and throat which are like the sides of face and top of head, light mouse-brown, forming the characteristic grebe hood.

Back: Dark slate grey.

Wings: The upper coverts are like the back in color. The primary quills are brownish grey, the inner five or six being margined with white at the tips. The secondaries are white, with the outer webs partly margined with greyish brown. In many adults this greyish brown margin is almost absent, the secondaries being nearly or quite white.

Lower parts: Chin and throat grey mouse color. Rest of lower parts shining satiny white shaded on the sides and flanks with dark slate.

"Iris crimson; bill dark brown; legs and feet pale slate." (H. Durnford.)

The adult female in breeding plumage is similar to the adult male, except that the area of black on the occiput is not so extensive, nor are the plumes of the ear-coverts as elongated.

Adults in non-breeding plumage are much like those in nuptial dress, except that they lack the straw colored feathers above described as well as the filaments to the crown feathers.

Immature birds are like the adults in non-breeding plumage except that the occiput and back of neck are dull white with a brownish tinge.

Geographical Range. — Patagonia, the Straits of Magellan, the Falkland Islands, Chile and the Argentine Republic northward to Peru.

The Princeton University Expeditions did not secure this species and the above measurements and descriptions are based on examples of this bird in the collections of the British Museum of Natural History, and on two individuals in the Princeton University Museum, from Museo de La Plata, cited in full below.

	P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
Skin.	54	Male.	Prov. Buenos Aires, Argentina.	January, 1898.	Museo de La Plata.
"	55	Female.	Prov. Buenos Aires, Argentina.	January, 1898.	

Darwin in his Voyage of the Beagle writes: "My specimens were obtained from Bahia Blanca (September), Northern Patagonia, and the Falkland Islands. In the former place it lived in small flocks in the salt-water channels, extending between the great marshes at the head of the harbour. At the Falkland Islands I saw (March) very few individuals; and these only in one small fresh-water lake. Tarsi of the same color as the plumage of the back; iris of a beautiful tint, between 'scarlet and carmine red'; pupil black. Mr. Gould remarks that, 'This beautiful species of *Podiceps* is equal in size, and has many of the characters of the *P. auritus*, but it is at once distinguished from that species by the silvery colouring of the plumes that adorn the sides of the head; which in *P. auritus* are deep chestnut" (Gould, Voy. "Beagle," Birds, p. 136, 1841).

Genus ÆCHMOPHORUS Coues.

Type.

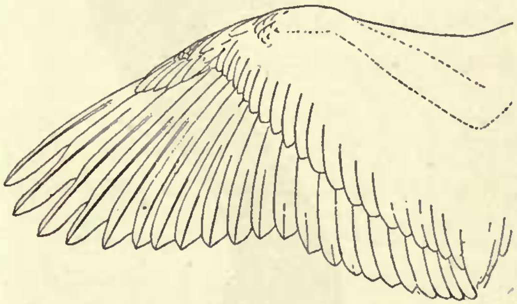
Æchmophorus, Coues, P. Acad. Sci. Philad. 1862, p. 229; Ogilvie-Grant, Cat. Bds. Brit. Mus. XXVI. p. 549 (1898); Sharpe, Hand-List Bds. I. p. 115 (1899) . . . . *Æ. occidentalis.*

Geographical Range.—North America and Central and Southern parts of South America to the Straits of Magellan.

ÆCHMOPHORUS MAJOR (Boddaert).

Grèbe de Cayenne, D'Aubent. Pl. Enl. IX. pl. 404, fig. 1 (1781).
Le Grand Grèbe, Buff. Hist. Nat. Ois. viii. p. 242 (1781).
Colymbus major, Bodd. Tabl. Pl. Enl. p. 24 (1783).
Cayenne Grebe, Lath. Gen. Syn. iii. pt. i. p. 284 (1785).
Colymbus cayennensis, Gm. Syst. Nat. i. p. 593 (1788).
Podiceps cayanus, Lath. Ind. Orn. II. p. 781 (1790).
Colymbus bicornis, Licht. Verz. Doubl. p. 88 (1823: Montevideo).
Podiceps leucopterus, King, Zool. Journ. IV. p. 101 (1829: Straits of Magellan); Gray, List B. pt. iii. p. 149 (1844); id. Gen. B. III. p. 633 (1846); Des. Murs in Gay's Hist. Chil. Zool. I. p. 463 (1847); Reichenb. Syst. Av. Natatores, pl. VII. figs. 740–741 (1848); James, List Chil. B. p. 15 (1885); Burm. An. Mus. Nac. Buenos Aires, III. pt. X. p. 249 (1888: Patagonia).

FIG. 39.



Æchmophorus major. Male. *Museo de La Plata*. Outline of Wing, showing relative proportion of primary and secondary quills.

Podiceps longirostris, Bonap. Icon. Faun. Ital. Introd. p. 1 (1832–41: Sardinia).

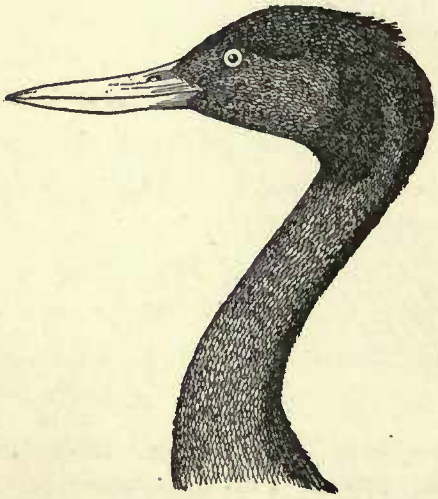
? *Podiceps chilensis*, Fraser (nec Garn.), P. Z. S. 1843, p. 119 (Fresh water lakes near the coast, Chile); Yarrell, P. Z. S. 1847, p. 55 (Chile: egg).

Podiceps major, Gray, Gen. B. III. p. 633 (1846); Schl. Mus. Pays-Bas, VI. Urinat. p. 38 (1867: Chile); Scl. & Salv. Exot. Orn. II. p. 190 (1869); iid. Ibis, 1870, p. 500 (St. Nicholas Bay, Str. Magellan); Cunn. Nat. Hist. Str. Magell. p. 458 (1871); Huds. P. Z. S. 1872, p. 549 (Rio Negro); Gibson, Ibis, 1880, p. 164 (Buenos Ayres, breeding); Salv. P. Z. S. 1883, p. 432 (Coquimbo Bay); Burm. An. Mus. Nac. Buenos Aires, III. pt. X. p. 249 (1888: Patagonia); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 232 (1891).

Podiceps bicornis, Gray, Gen. B. III. p. 633 (1846); Bp. C. R. xlii. p. 775 (1856); Burm. J. f. O. 1860, p. 267 (Santa Fé, Rio Paraná); id. La Plata Reis. II. p. 520 (1861: Paraná); Gray, Hand-List B. III. p. 93 no 10742 (1871); Burm. An. Mus. Nac. Buenos Aires, III. pt. X. p. 249 (1888: Patagonia).

Æchmophorus major, Scl. & Salv. Nomencl. Av. Neotr. p. 150 (1873); Durnf. Ibis, 1876, p. 165 (Banda Oriental: Buenos Ayres), 1877, p. 203 (Baradero; Montevideo); 1878, p. 405 (Chupat Valley, September: Lagoons of the Sengel: Sengelen; Lake Colgaupe); White, P. Z. S. 1883, p. 433 (La Plata); Barrows, Auk, I. p. 316 (1884: Concepcion); Salvad. Elenc. Ucc. Ital. p. 300 (1887); Withington, Ibis, 1888, p. 473 (Lomas de Zamora); Scl. & Huds. Argent. Orn. II. p. 202 (1889); James, New List Chil. B. p. 13 (1892); Holland, Ibis, 1892, p. 213 (Estancia Espartilla); Lane, Ibis, 1897, p. 313 (Puerto Octay: Rio Bueno: Lake Llanquehui); Grant, Cat. B. Brit. Mus. XXVI. p. 549 (1898): Schalow, Zool. Jahrb. Suppl. IV. p. 652 (1898: Villa Rica: Laguna Llanquihue: Punta Arenas, Chile: Susanna Cove, Patagonia);

FIG. 40.



Æchmophorus major. 7806. Princeton University Collection. Breeding female. Profile of head and neck. ⅓ natural size.

Sharpe, Hand-List B. I. p. 115 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 23 (1900: Str. Magellan); Salvad. Ann. Mus. Genov. (2) XX. p. 633 (1900: Santa Cruz, Patagonia, Jan.); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 138, pl. XI. fig. 9 (1901).

Colymbus salvadorii, Stejn. Bull. U. S. Nat. Mus. XXIX, p. 13 (1885).

GENERAL DESCRIPTION.

Size.—Total length, about 26.00 inches.

Culmen (from feathers on forehead), 2.8 to 3.3 inches.

Wing, 2.7 to 3.3 inches. Tarsus, 2.6 inches.

Color.—General color above brownish black glossed with dark green, most pronounced on the head and neck. The under parts are satiny white from the lower breast backward; the upper breast is shaded with silvery rufous, bright chestnut on the lower part of the neck, up to the head.

Head: Top of head and occiput dark brownish black glossed conspicuously with green. The feathers of the occiput and the upper part of the nape, prolonged into a full though short crest. Sides of head deep lead color, darkest in the region back of the ears, and shading into blackish green.

Neck: Above dark brownish black, glossed with dark green. Sides and under parts bright chestnut shading into silvery chestnut or rufous on the lower neck. Chin and fore part of neck lead color like the sides of the face, becoming darkest, almost black, where it is sharply defined on the lower part of the throat.

Back: Brownish black, not so dark as on the head and neck, and glossed with greenish. The feathers of this region have definite brownish white margins as have also the scapulars. The lower back and rump are darker, the feathers lack the brown-white margins, and there is a strong underlying tinge of deep chestnut.

Wings: Like the back in general color but greyer. The outer primaries are ash brown, whitish on the basal half of their inner webs, this proportion of white gradually increases to the innermost quills which are nearly pure white. The secondaries are white.

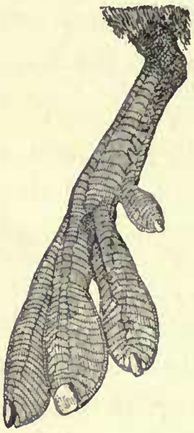
Lower parts: Lower breast and abdomen satiny white. Upper breast and sides of breast pale rufous shading into chestnut. Remainder of sides and the flanks brownish ash more or less tinged with rufous.

This description is based on an adult female no. 7806, Princeton University Ornithological Collection, taken on the Pacific Slope of the Cordilleras, Patagonia, 16 March, 1897. The collector, Mr. J. B. Hatcher, notes the eyes as "brown with a yellow border."

Immature birds resemble the adult, but differ in having the sides of the head and face, and the chin and throat white. The sides and fore part of the neck chiefly greyish tinged with chestnut. The sides of the breast and flanks are ashy-brown, without traces of chestnut.

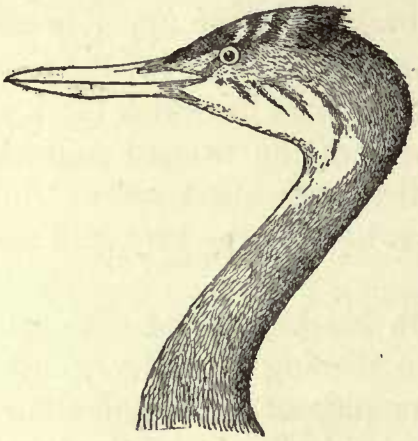
Young in Down.—The general color of the upper parts as well as of the head and neck black, marked with longitudinal stripes of white. These become broken and irregular on the crown and sides of the head where they form a distinct pattern. There is a naked patch on the middle of the crown. Entire lower parts including the throat and chin white. The descriptions of the immature and of the down plumage are taken from material in the British Museum of Natural History.

FIG. 41.



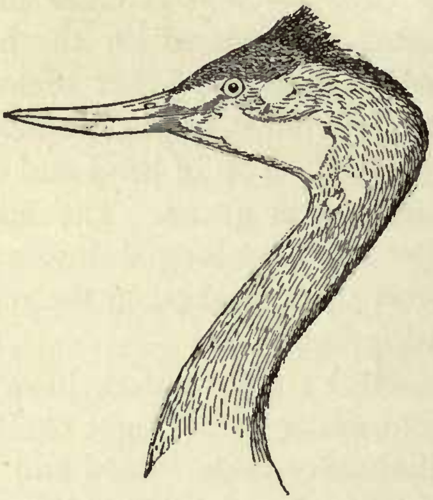
Æchmophorus major. 7806. Princeton University Collection. Breeding female. Detail of foot. ⅓ natural size.

FIG. 42.



Æchmophorus major. 8636. Princeton University Collection. Immature. Buenos Aires. Profile of head and neck. ⅓ natural size.

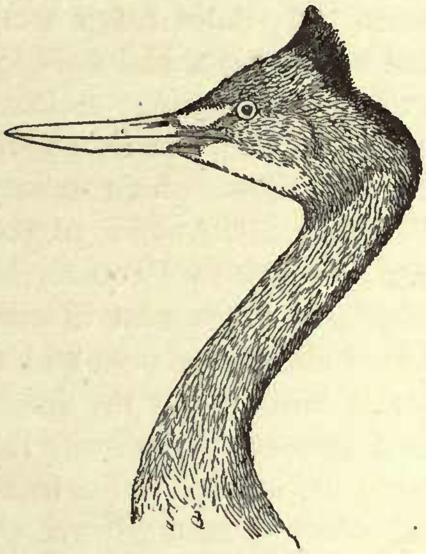
FIG. 43.



Æchmophorus major. 8635. Princeton University Collection. Adult female. Winter. Buenos Aires. Profile of head and neck. ⅓ natural size.

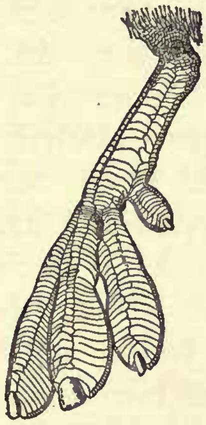
The adult male in winter is not so highly colored as in the breeding season and has a white throat and a white area in front of the eye. The adult female in winter resembles the immature bird.

FIG. 44.



Æchmophorus major. 8633. Princeton University Collection. Adult male. Winter. Buenos Aires. Profile of head and neck. ⅓ natural size.

FIG. 45.



Æchmophorus major. 8633. Princeton University Collection. Adult male. Winter. Buenos Aires. Detail of foot. ⅓ natural size.

Geographical Range.—Central and Southern portion of South America. Patagonia to the Straits of Magellan.

The Princeton Expeditions to Patagonia procured but one representative of this kind of grebe which is cited in full below. This bird appears to have finished breeding. The material in the University Museum embraces six other individuals which together with that spoken of form the basis for the foregoing descriptions.

Cond.	P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
Skin.	7806	Female.	Rio Mayer Patagonia.	Mar. 16, 1897.	J. B. Hatcher.
"		Male.	Prov. Buenos Aires, Argentina.	July, 1898.	Museo de La Plata
"	8633	Male.	La Plata, Argentina.	July, 1896.	S. Pozzi.
"	8634	Female.	La Plata, Argentina.	August, 1897.	"
"	8635	Female.	La Plata, Argentina.	July, 1896.	"
"	8636	——	——	——	"
"	8637	Male.	La Plata, Argentina..	June, 1896.	"

In speaking of this grebe as he met it in Patagonia, Mr. J. B. Hatcher writes (MSS. notes): "Found solitary or in pairs in lakes along the lower Andes, far from the sea."

Mr. Barrows says: "Not uncommon at Concepcion during cool weather, both on the river and on smaller streams. My dates range from March 25 to September 26. One, which I shot on June 29, had only long, fine, water-grass in the stomach, not even the smell of fish. A few birds of this species were seen in the salt lakelet of Puan, March 27, 1881. In many places they are much hunted for the skins, which form quite an article of commerce at Buenos Aires." (Barrows, Auk, 1. p. 316, 1884.)

"One particularly bright and cheerful day late in February, as I rode through the woods at a distance of some five miles west of our camp, I came upon a small, nearly circular lake of about one mile and a half in diameter. As I emerged from the forest and sat on my horse by the rocky shore, where I thought to stop for a moment and admire the beautiful scene before me, there came floating across the water from the far side of the lake a low plaintive sound, which I instantly recognized as that of the grebe, *Æchmophorus major.* In this sheltered place there was not a sufficient breeze to cause the slightest ripple on the surface of the lake, which for an instant I carefully scanned, hoping to get sight of the flightless bird which I knew must be present, though the locality was remote from its normal habitat. For a few moments, save the low plaintive cry which was wafted at intervals from the opposite side, I could see nowhere on the surface of the lake the slightest evidence of life. A little later, however, I detected a wide V-shaped ripple on the water, with a small black object at the apex which was directed straight toward me from the opposite shore. For a time I remained motionless and watched the solitary bird as he sat gracefully on the surface of the water, with his long neck erect, and held a perfectly straight course for the beach at my feet, continuing to utter at regular intervals those singularly plaintive notes which seemed almost as though intended to bespeak from me commiseration for him in the lonely solitude of his surroundings." (Nar. Princ. Univ. Exp. Pat. 1896–1899. Hatcher; Vol. I. p. 137, 1903.)

Genus PODILYMBUS Lesson.

	Type.
Podilymbus, Lesson, Traité d'Orn. p. 595 (1831); Ogilvie-Grant, Cat. Bds. Brit. Mus. XXVI. p. 553 (1898); Sharpe, Hand-List Bds. I. p. 115 (1899)	*P. podicipes.*

Sylbeocyclus, Bonap. Saggio, p. 86 (1832); Sclater, Ibis, 1874, p. 98 . . . . *P. podicipes.*
Hydroka, Nuttall, Man. Orn. p. 259 (1834) . . . . . *P. podicipes.*
Nexiteles, Gloger, Hand- u. Hilfsb. p. 473 (1842) . . . *P. podicipes.*

Geographical Range.—North and South America.

PODILYMBUS PODICIPES (Linnæus).

The Pied-bill Dopchick, Catesby, Nat. Hist. Carol. I. p. 91, pl. 91 (1731).
Colymbus podiceps, Linn. Syst. Nat. I. p. 136 (1758).
La Grebe de l'Isle S. Thomas, Briss. Orn. VI. p. 58 (1760).
La Grebe de riviere de la Caroline, Briss. tom. cit. p. 63.
Le Grèbe de la Louisiane, D'Aubent. Pl. Enl. IX. pl. 943 (1781).
Le Grèbe Duc-laart, Buff. Hist. Nat. Ois. VIII. p. 240 (1781).
Le Castagneux à bec cerclé, Buff. tom. cit. p. 247.
Colymbus ludovicianus, Bodd. Tabl. Pl. Enl. p. 56 (1783); Licht. Verz. Doubl. p. 88 (1823: Montevideo).
Red-bill Grebe, Pennant, Arct. Zool. II. p. 497, pl. xxii (1785).
Louisiane Grebe, Pennt. tom. cit. p. 498.
Black-breasted Grebe, Lath. Gen. Syn. III. pt. i. p. 289 (1785).
Colymbus thomensis, Gmel. Syst. Nat. i. p. 592 (1788).
Podiceps thomensis, Lath. Ind. Orn. II. p. 784 (1790).
Podiceps carolinensis, Lath. tom. cit. p. 785; Schl. Mus. Pays. Bas, VI. Urinat. p. 47 (1867: Santiago, Chile).
Podiceps ludovicianus, Lath. tom. cit. p. 785.
Sylbeocyclus carolinensis, Bonap. Comp. List Eur. & N. Amer. B. p. 64 (1838).
Colymbus carolinensis, D'Orb. in Ramon de la Sagra Hist. Cuba, Ois. p. 285 (1839).
Podiceps antarcticus, Less. Rev. Zool. 1842, p. 209 (Valparaiso); Gray, Gen. B. III. p. 633 (1846); Des Murs in Gay's Hist. Chil. Zool. i. p. 465 (1847); Scl. P. Z. S. 1867, p. 337.
Podilymbus carolinensis, Gray, List-B. part iii. p. 152 (1844); Reichenb. Syst. Av. Natatores, pl. VIII. figs. 756–757 (1848); Pelz. Reis. Novara, p. 140 (1865: Chile).

Podilymbus brevirostris, Gray, Gen. B. III. pl. clxxi (1846).

Podilimbus brevirostris, Reichenb. Syst. Av. Natatores, pl. cclxvi. fig. 2236 (1848).

Podilymbus anisodactylus, Reichenb. Syst. Av. Natatores, pl. viii. fig. 760 (1848).

Podilymbus antarcticus, Hartl. Naum. 1853, p. 218 (Valdivia); Scl. P. Z. S. 1867, p. 337 (Chile); id. & Salv. P. Z. S. 1868, p. 177 (Tambo Valley, Peru); Gray, Hand-list B. III. p. 95, no. 10771 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 150 (1873); James, List Chil. B. p. 15 (1885); Tacz. Orn. Pérou, III. p. 498 (1886); James, New List Chil. B. p. 13 (1892); Lane, Ibis, 1897, p. 314 (Rio Bueno: Llanquehui: Rio Conta); Schalow, Zool. Jahrb. Suppl. IV. p. 650 (1898: Laguna Llanquihue).

Podilymbus lineatus, Heerm. Proc. Acad. Philad. 1854, p. 179.

Sylbeocyclus podiceps, Bp. C. R. XIII. p. 775 (1856).

Sylbeocyclus antarcticus, Bp. t. c. p. 775.

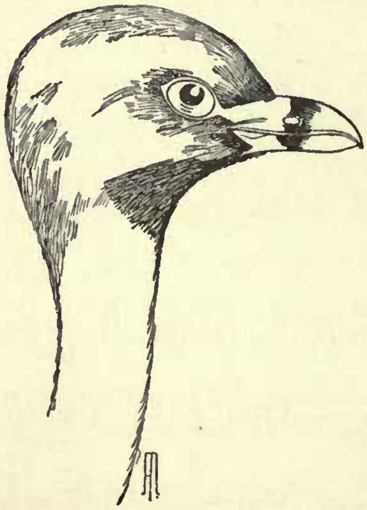
Sylbeocyclus lineatus, Bp. t. c. p. 775.

Podilymbus podiceps, Scl. & Salv. Ibis, 1859, p. 234 (Guatemala), 1870, p. 500 (Compaña, Straits Magellan); Cunn. Nat. Hist. Str. Magell. p. 334 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 150 (1873); Baird, Brewer and Ridgw. Water Birds N. Amer. II. p. 440 (1884); Withington. Ibis, 1888, p. 473 (Lomas de Zamora, breeding); Scl. & Huds. Argent. Orn. II. p. 206 (1889); Graham Kerr, Ibis, 1892, p. 151 (Fontin Page, Lower Pilcomayo).

Podilymbus eurytes, Gray, Hand-List B. III. p. 95, No. 10772 (1871).

Podilymbus podicipes, Merriam, Bull. Nutt. Orn. Club, VII. p. 241 (1882); Grant, Cat. B. Brit. Mus. XXVI. p. 553 (1898); Sharpe, Hand-List B. I. p. 115 (1899); Martens, Hamb. Sammelr. Vög. p. 23 (1900: Str. Magellan); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 138 (1901).

FIG. 46.



Podilymbus podicipes. Profile of head and neck. Breeding plumage. ⅔ natural size.

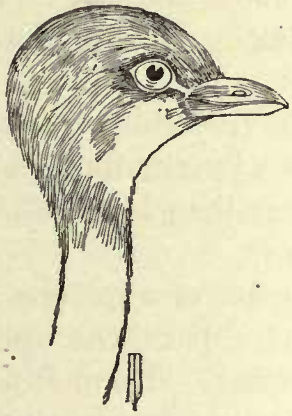
GENERAL DESCRIPTION.

Size (adult male).—Total length, about 14 inches.
Culmen (from feathers on forehead), 0.75 to 1 inch.
Wing, 5.1 to 5.6 inches.
Tarsus, 1.6 to 1.8 inches.
Adult Female: Total length, about 12 inches.
Culmen (from feathers on forehead), 0.7 to 0.9 inches.
Wing, 4.6 to 5 inches.
Tarsus, 1.35 to 1.6 inches.

The adult males of this species are decidedly larger than the adult females.

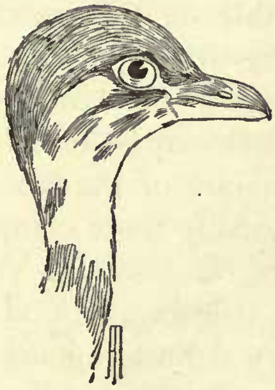
Color (adult breeding).—General color above dark glossy brown. Lower breast and belly silvery white with some dusky mottling. On the sides and flanks dark brown with rufous mottling.

FIG. 47.



Podilymbus podicipes. Profile of head and neck. Adult in winter. ½ natural size.

FIG. 48.



Podilymbus podicipes. Profile of head and neck. Young of the year. ½ natural size.

Head: Crown dark brown inclining to blackish. Sides of head and face below the eyes sandy ash.

Neck: Sandy ash below becoming dark brown like the crown above. The throat and extreme upper fore neck deep black, which extends as a slight bar back of base of the lower mandible upward to the gape.

Back: Dark glossy brown with some ashy washing, depending on the freshness of the plumage.

Wings: Much like the back. The primary and secondary quills ashy, inclining to white on their inner webs, and this condition progressing so that the secondaries have a whitish appearance. This varies in individuals and does not seem to be correlated with age or season.

Lower parts: Silky white with some dusky mottling. The flanks and sides dark brown approaching the back in color but more ashy and mottled with rufous in a varying degree.

Iris dark hazel, with a narrow outer rim of yellowish white.

Bill pale, almost white with a slight greenish tint *and having a distinct well defined black band across both mandibles.*

Tarsi and feet greenish slate color; the greenish shading is not so apparent on the inner surface of the toes or tarsi.

Adult in Non-breeding or Winter Plumage. — The appearance of this grebe in this phase of plumage differs from that described as follows: The chin and throat are white generally strongly suffused with rusty. This suffusion is very pronounced on the fore neck, sides and flanks, and is noticeable on the upper parts generally. The belly is less affected in this way than the other parts.

Young of the Year. — Young birds of the year resemble winter adult birds, but may be readily recognized by dark brown longitudinal markings on the sides of the face and throat. The bill is as long as in adults but is noticeably more compressed.

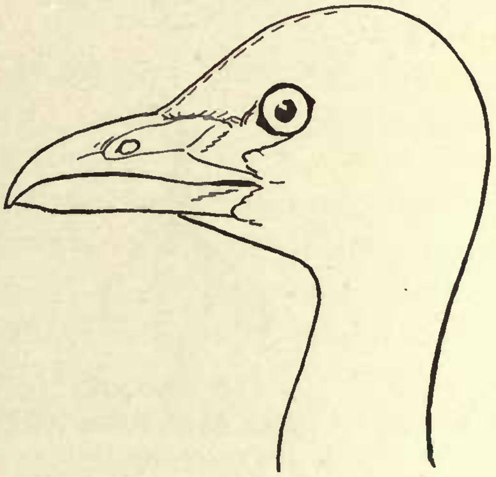
Young in Down. — Young in the downy phase are of a general dusky brown coloring, striped longitudinally with white. The head and neck are very definitely marked in black and white striping. There is a chestnut area in the middle of the crown, and two chestnut bands across the nape. The chin, throat, breast and belly are white and the sides and flanks greyish brown.

Geographical Range. — Patagonia, the Argentine Republic, and northward throughout South America, the West Indies, Mexico and North America as far north as Hudson's Bay and the Great Slave Lake. The Bermudas. Breeding locally throughout its range, and being migratory in North America and probably in South America, in the regions where ice is formed during the colder portions of the year.

The Princeton University Expeditions did not observe or secure this species in Patagonia, though it doubtless occurs in at least the northern portions of that region. The description is based on material in the University Museum collected at various points in North America, and on the material cited below from the Pozzi collection.

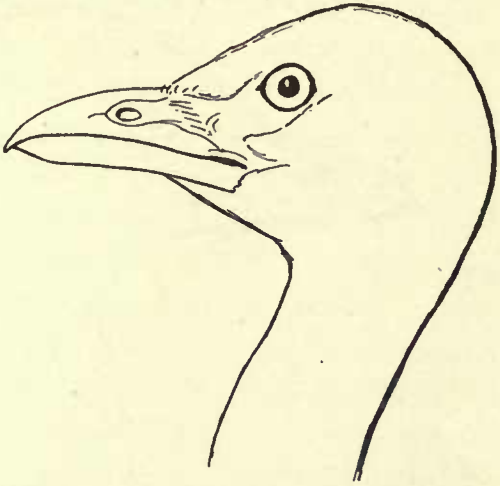
Cond.	P. U. O. C.	Sex.	Locality.	Date.	Collector.
Skin.	8630	Male, ad.	Prov. Buenos Aires, Argentina.	July, 1897.	S. Pozzi.
"	8631	Female, ad.	Near Buenos Aires.	" "	"
"	8632	Female, im.	Prov. Buenos Aires, Argentina.	" "	"

FIG. 49.



Podilymbus podicipes. 8630. Princeton University Collection. Profile of adult male. Buenos Ayres. Natural size.

FIG. 50.



Podilymbus podicipes. 8631. Princeton University Collection. Profile of adult female. Buenos Ayres. Natural size.

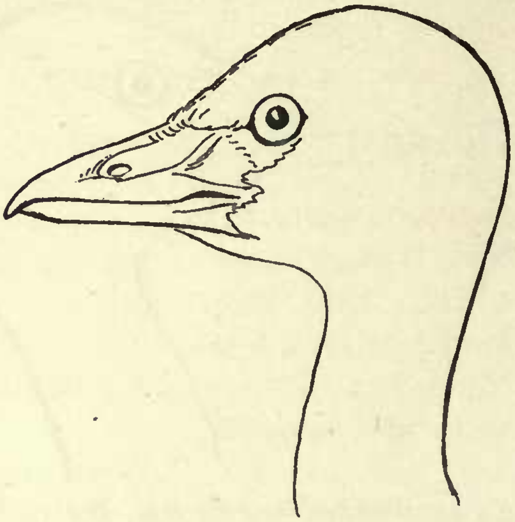
It will be noticed that all these birds were taken in the winter. The two adults show traces of the black throat patch and in the male it is clearly defined, though not fully developed. However, it is clear that the area occupied by the black is much more extensive than in specimens of this species from North America. It extends much farther down on the throat and higher up on the sides of the face and neck. The bill is much more robust and the birds are appreciably larger than any birds I have seen from North America.

The immature bird still shows traces of the neck striping about the throat. It is a full grown bird with no traces of down. The under parts are much darker than in North American representatives, and this is particularly noticeable on the breast and belly, and on the sides and flanks. Nowhere is there any clear silky white area, and the general under color is dusky brown, shaded with silky feathers of a curious gray cast, the lightest area being about the center of the lower surface of the body, rapidly shading into dusky in every direction.

More material may prove the Patagonian birds to be worthy of specific rank and, as a geographical race or subspecies, it possesses much greater claim than any of those which have been so discriminated.

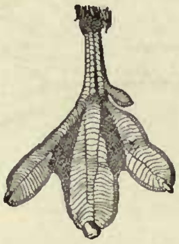
"Dr. Hartlaub, in describing *Podilymbus antarcticus* (*Podiceps antarcticus* Less.) in his article in 'Naumannia,' does not appear to be aware that it is the same as *P. brevirostris* of Gray's 'Genera.' The error appears to have occurred from it not being stated on the plate in the 'Genera' that the figure of *P. brevirostris* is reduced in size. The typical specimens of *P. brevirostris* were obtained in Chili by Mr. Bridges. I cannot find any difference between them and specimens of a *Podilymbus* collected on the lakes of Atitlan in Guatemala by Mr. Salvin; so that it would appear that this species ranges all along the Andes into Central America." (P. L. Sclater, P. Z. S., 1867, 337.)

FIG. 51.



Podilymbus podicipes. 8632. Princeton University Collection. Profile of immature female. Buenos Ayres. Natural size.

FIG. 52.



Podilymbus podicipes. 8630. Princeton University Collection. Foot of adult male. Buenos Ayres. ⅓ natural size.

Order SPHENISCIFORMES.

Sharpe, Classif. Bds. p. 71 (1891); id, Hand-List Bds. I. p. 117 (1899).

Family Spheniscidæ.

Ogilvie-Grant, Cat. Bds. Brit. Mus. XXVI. p. 623 (1898); Sharpe, Hand-List Bds. I. p. 117 (1899). Mitchell, Trans. Linn. Soc. (2) Zool. viii. pp. 173–275, pls. xxi–xxiii, text figures 1–75 (1901).

Shufeldt, J. Anat. Physiol. (2) xv. pp. 390–404 pl. xxxviii (1901).

Genus APTENODYTES Forster.

	Type.
Aptenodytes, Forster, Comment. Göttingensis, iii. p. 133 (1781); Hyatt, Pr. Bost. Soc. Nat. Hist. XIV. p. 241 (1872); Ogilvie-Grant, Cat. Bds. Brit. Mus. XXVI. p. 626 (1898); Sharpe, Hand-List Bds. I. p. 117 (1899)	*A. patagonica.*
Apterodita, Scop. Del. Flor. et Fauna Insubr. ii. p. 91 (1786)	*A. patagonica.*
Pinguinaria, Shaw, Mus. Lever. p. 144 (1792)	*A. patagonica.*

Geographical Range.—Straits of Magellan to New Zealand and the Macquarie Islands. Falkland Islands; Kerguelen Island. Shores of Antarctic Continent.

Aptenodytes patagonica (Forster).

Patagonian Pinguin, Penn. Phil. Trans. lviii. p. 91 tab. V (1768); id. Gen. B. p. 55, tab. 14 (1781); Lath. Gen. Syn. III. pt. 2 p. 563 (1785).

Le Manchot, Sonn. Nouv. Guin. p. 179, tab. 113 (1776).

Le Manchot des Isles Malouines, D'Aubent. Pl. Enl. X. pl. 975 (1781).

Le Grand Manchot, Buff. Hist. Nat. Ois. IX. p. 399, tab. xxx (1783).

Aptenodytes patachonica, Forst. Nouv. Comm. Götting. III. p. 137, pl. 2 (1781); Gm. Syst. Nat. i. p. 556 (1788); Lath. Ind. Orn. II. p. 878

(1790); Reid, P. Z. S. 1835, p. 132 (Falkland Islands); Cass. U. S. Expl. Exped. p. 349 (1858); Fitz. Bilder-Atlas Nat. Vög. fig. 347 (1864); Milne Edwards Ann. Sci. Nat. (6) IX. art. 9 p. 37 (1879–1880); Vincig. Faun. Amer. Austr. Boll. Soc. Geogr. Ital. xxi. p. 801 (1884).

Apterodyta longirostris, Scop. Flor. et Faun. Insubr. II. p. 91 (1786).

Aptenodyta patagonica, Bonn. Enc. Meth. I. p. 66, tab. xvi, fig. 3 (1790).

Pinguinaria patachonica, Shaw, Mus. Lever. p. 144 cum tab (1792).

Pinguinaria patagonica, Shaw in Miller's Cim. Phys. p. 45 (1796).

Aptenodytes patagonica, Miller, Cim. Phys. tab. XXIII. (1796); Stephens in Shaw's Gen. Zool. XIII. p. 55, pl. 7 (1825); Forst. Descr. Anim. p. 347 (1844: Falkland Isl.); Reichenb. Syst. Av. Natatores, pl. I. figs. 3, 4 (1848); Grant, Cat. B. Brit. Mus. XXVI. p. 627 (1898); Sharpe, Hand-List B. I. p. 117 (1899); Martens, Vög. Hamb. Magalh. Sammelr. p. 23 (1900); Salvad. Ann. Mus. Genov. (2) XX. p. 633 (1900: Penguin Rookery, Feb.); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 143 (1901).

Patagonian Pinguin, Shaw & Nodd. Nat. Misc. XI. tab. 409 (1799).

Hairy Pinguin, Lath. Gen. Hist. B. X. p. 392 (1824: Young); Yarrell, P. Z. S. 1833, p. 33.

Woolly Pinguin, Lath. Gen. Hist. B. X. p. 392, pl. 181 (1824: Young); Yarrell, P. Z. S. 1833, pp. 33, 65.

King Penguin, Weddell, Voy. South Pole, p. 55 (1825).

Aptenodytes pennantii, Gray, Ann. & Mag. N. H. xiii. p. 315 (1844); id. List B. Brit. Mus. III. p. 156 (1844: Falkland Isl.); Reichenb. Syst. Av. Natatores, pl. i. figs. 1, 2 (1848); Bp. C. R. xlii. p. 775 (1856); Gould, P. Z. S. 1859, p. 98 (Falkland Isl.); Scl. op. cit. 1860, p. 390 (loc. cit.); Abbott, Ibis, 1861, p. 163 (Falkland Isl. not known to breed); Scl. P. Z. S. 1865, p. 318 (Falkland Isl.); id. 1868, p. 527 (E. Falkl.); id. & Salv. Ibis, 1869, p. 284 (Tyssen Isl.); Gray Hand-List B. III. p. 99 no. 10808 (1871); Hyatt, Proc. Bost. Soc. N. H. XIV. p. 247 (1872: Straits of Magellan); Gray, Erebus & Terror pl. 32 (1875); Scl. P. Z. S. 1879, p. 763 (Staten Isl. Tierra del Fuego); id. Ibis, 1888, pp. 331, 332, figs. 1 & 3; de Winton, P. Z. S. 1899 pp. 900, 980 (moulting).

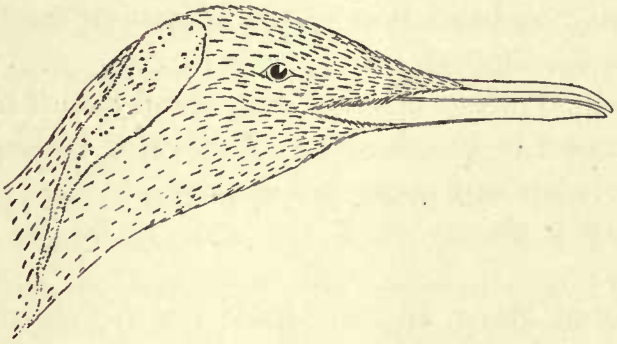
Aptenodytes rex, Bp. C. R. xlii. p. 775 (1856).

Aptenodytes forsteri (nec Gray), Scl. Ibis, 1860, p. 432 (Falkland Isl.).

Spheniscus pennantii, Schl. Mus. Pays-Bas, vi. Urinat. p. 3 (1867: Falkland Isl.).

Aptenodytes longirostris, Coues, Proc. Acad. Philad. 1872, p. 193 (Falkland Isl.); Sharpe, Erebus & Terror, App. p. 37 (1875); Scl. & Salv. P. Z. S. 1878, p. 653 (Falkland Isl.); Scl. P. Z. S. 1879, p. 311 (eggs); id. & Salv. Voy. Chall. Birds, p. 122 (1880: Falkland Isl.); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 249 (1888: S. Patagonia); Studer, Forschungsreise S. M. S., Gazelle, III. p. 104 (1889); Steinen, Internat. Polarforsch. Deutschen Exped. II. pp. 229–237, 273–276, pls. 7, 8 (1890); Oust. Sci. Miss. Cap Horn, p. 319 (1891); Moseley, Notes Voy. Chall. p. 152 cum fig. (1892); Hazard, Auk, XI. p. 280, pl. viii. (1894: notes on nesting).

FIG. 53.



Aptenodytes patagonica. Profile head and neck. ⅓ natural size.

GENERAL DESCRIPTION.

Size. — Total length about 36 inches.

Culmen (gape to tip), 4.7 inches.

Culmen (from nasal feathers to tip), 2.4 inches.

Wing (shoulder to tip), 12 inches.

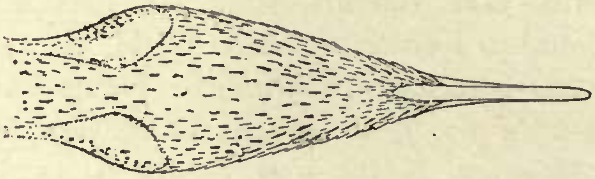
Tail, 3.2 inches.

Color. — General color of upper parts dull blackish so thickly mottled with small round blue grey spots as to present a bluish grey appearance; and below white.

Head: The top of the head, and cheeks deep black having a distinct dark greenish gloss. A large oval patch of orange-yellow on the sides of the head, back of the ears.

Neck: Sides of the neck uniform blue grey. Above and continuous with the black of the crown and terminating in a point, there is a black area on the nape, glossed with dark green. This color also extends on the chin and throat. The yellow which forms the two oval areas back of the ears, is separated above by the black crown. Thence as two narrow yellow lines this color reaches down the sides of the neck and unites on the lower throat where it joins the orange yellow patch on the breast. The yellow is everywhere separated from the blue grey of the back and sides of the neck by a narrow black line, which widens on the sides of the breast and terminates at the flippers.

FIG. 54.



Aptenodytes patagonica. Head from above. ⅓ natural size.

Back: Blackish. Thickly mottled with small round blue grey spots so that the general effect is bluish grey. This color becomes bluer grey on the region of the rump and upper tail coverts.

Tail: Of twenty feathers, which are scarcely longer than the longest upper tail-coverts.

Flippers: Colored above like the back, but below rather greyer white with a large terminal spot or area of dusky black.

Lower parts: Silky white with an orange area just below the termination of the black of the throat, formed by the confluence of the two orange yellow lines and shading off into the silky white of the lower breast.

Bill: Interramal space entirely feathered. Upper mandible black. Lower mandible black at the tip becoming flesh color at the base.

Eyes: Hazel brown.

Tarsi and feet: Black, the former feathered but not so as to conceal the base of the outer toe.

Immature birds have the yellow decorations of the sides of the head and throat whitish with a faint yellow tinge. Otherwise they are similar to adults.

Young attaining first plumage from down. Head and neck of uniform brown down overcast with grey giving a smoky effect. Flippers blue grey showing remnants of long brown or dusky down. This condition also prevails on the back and shoulders. Breast and chest dirty white with a strong yellow tinge and with much long dusky hair-like down. Rest of lower parts much as in adults. These birds are almost full grown.

Downy birds and *nestlings* are entirely clothed in dull dusky brown down.

Geographical Range.—Straits of Magellan and Cape Horn. Falkland, South Georgia, Marion, Kerguelen, Macquarie, Suaves and Stewart Islands.

The Patagonian Penguin was not obtained by the naturalists of the Princeton Expeditions to Patagonia. The material used in these descriptions is in the Museum of the Philadelphia Academy of Sciences, in the British Museum of Natural History and in the Museum of the Jardin des Plantes.

In the Natural History of Kerguelen Island Dr. Kidder writes of this species, "No eggs or young in the collection. It is of this genus that the statement is made that the eggs are incubated in a sort of pouch, formed by a fold of skin and situated between the tibiæ. The whalers met at Kerguelen Island confirm this statement; but no opportunity for direct personal observation was found during the stay of the transit-party. The male and female are said to alternate in carrying the egg around. Nat. Hist. Ker. Is. Bull. U. S. Nat. Mus. No. 3. p. 18 (1876).

"In 'Bulletin No. 2' of the United States National Museum (p. 41), Dr. J. H. Kidder mentions a curious habit of the King Penguin (*Aptenodytes longirostris*) upon the authority of Captain Joseph J. Fuller, of the schooner 'Roswell King,' informs me . . . that they (the King Penguins) build no nests whatever, carrying the egg about in a pouch between the legs, and only laying it down for the purpose of changing it from male to female. This 'Bulletin No. 2' was printed in 1875. In 1891 I had the good fortune to meet this same Captain Joseph J. Fuller, then about to sail for the Antarctic as Master of the sealing schooner 'Francis Allyn.' After some experimenting with cameras to find one best suited to the bad conditions of the Antarctic, we found a camera combining the essential virtues and agreed that one principal point to settle should be this one as to the egg-carrying habits of the Penguins. If possible a King Penguin was to be photographed so as to show the egg in position in the sac. Captain Fuller told me he felt sure he could manage the camera, which was fitted with a roll holder and films, but greatly feared the dark and foggy weather prevailing would hinder the best results.

"About ten months later I received four rows of films by schooner from St. Helena, where the 'Francis Allyn' had transhipped her catch of skins. They were Eastman films and many were excellent, especially such as had been exposed in sunlight at Cape Town, St. Helena, and Tristan d'Acunha. But the special efforts to photograph seals, sea elephants, Penguins of all degrees, Skuas (*Buphagus skua antarcticus*), Johnny Rooks (*Senex australis*), Sheath-bills (*Chionis minor*), and many another strange and interesting denizen of that comfortless Antarctic region were all failures, in part at least. The weather was no doubt largely responsible for this, and in many cases there was barely light enough to show a horizon line. The large percentage of failures was relieved by the fact that some of the best and most decipherable among them bore precisely upon the point stated by Dr. Kidder upon the authority of Captain Fuller. The photograph from which Mr. E. Whitney Blake has kindly made a careful scale drawing now reproduced, was one of the best of three, all meant to show the egg *in* the pouch. All three were taken on Kerguelen's Island, during January, 1894, at which time the whole 'rookery' of Penguins was incubating. While the sailors caught the birds, then not a hard task, Captain Fuller photographed them, and while very bad photographically, it is possible to decipher at least one of them, as I think the drawing proves. A careful inspection of the original shows the larger end of the egg, which barely projects from the external sac, which holds it firmly between the thighs of the bird, a king Penguin. The bird reclines in its position in the sailor's arms, while his finger holds the egg securely, to prevent the bird dropping it. The soles of the Penguin's feet, if one may so speak, are turned up toward the camera, and are clearly defined against the breast. Mr. Blake's drawing shows this all and more." (R. G. Hazard, Auk, 1894, pp. 280–281.)

Genus PYGOSCELIS Wagler.

	Type.
Pygoscelis, Wagler, Isis, 1832, p. 281; Hyatt, Pro. Bost. Soc. Nat. Hist. XIV. p. 242 (1872); Ogilvie-Grant, Cat. Bds. Brit. Mus. XXVI. p. 630 (1898); Sharpe, Hand-List Bds. I. p. 118 (1899)	*P. papua.*
Dasyrhamphus, Hombron & Jacquinot, Voy. Póle. Sud, Zool. iii. p. 154 (1853)	*P. adeliæ.*
Pygoscelys, Bonap. C. R. xlii. p. 775 (1856)	*P. papua.*

Geographical Range.—Straits of Magellan, south to the shores of the Antarctic Continent, Falkland Islands, Kerguelen Island, New Zealand Seas and Macquarie Islands.

PYGOSCELIS PAPUA (Forster).

Le Manchot papou, Sonn. Voy. Nouv. Guin. p. 181 pl. CXV (1776).

Aptenodytes papua, Forst. Nov. Comm. Götting. III. p. 140 pl. iii. (1781); Gm. Syst. Nat. i. p. 556 (1788: Falkland Isl.); Lath. Ind. Orn. II. p. 879 (1790); Vieill. Gal. Ois. II. p. 246, pl. ccxcix (1834); Forst. Descr. Anim. p. 352 (1844).

Papuan Pinguin, Lath. Gen. Syn. III. pt. 2 p. 565 (1785).

Apterodita papuæ, Scop. Del. Flor. et Faun. Insubr. II. p. 91 (1786).

Aptenodyta papua, Bonn. Enc. Méth. I. p. 67 pl. 17 fig. 3 (1790).

Chrysocoma papua, Stephens in Shaw's Gen. Zool. xiii. p. 59 (1825).

Pygoscelis papua, Gray, List B. iii. p. 153 (1844: Falkland Isl.); Reichenb. Syst. Av. Natatores, pl. ii. Suppl. i fig. 738 (1848); Hyatt, Proc. Bost. Soc. Nat. Hist. XIV. p. 249 (1872): Milne Edwards, Ann. Sci. Nat. (6) IX. Art. IX. p. 59 (1880); Steinen, Internat. Polarforsch. Deutschen Exped. II. pp. 221–229, pls. 9, 10 (1890: S. Georgia); Donald, Proc. Roy. Soc. Edinb. XX. p. 175 (1894); Grant, Cat. B. Brit. Mus. xxvi, p. 631 (1898); Sharpe, Hand-List B. I. p. 118 (1899); Oates Cat. Bds. Eggs, Brit. Mus. I. p. 143 (1901).

Eudyptes papua, Gray, Gen. B. III. p. 641 (1846); Cass. U. S. Expl. Exped. p. 350 (1858); Gould, P. Z. S. 1859, p. 98 (Falkland Isl.); Abbott, Ibis, 1860, p. 336 (Falkland Isl. breeding); Gray. Handl. B. III. p. 98, no. 10796 (1871).

Aptenodytes tæniata, Peale, U. S. Expl. Exped. p. 264 (1848).

Pygoscelis wagleri, Scl. P. Z. S. 1860, p. 390 (Falkland Isl.), id. P. Z. S. 1861, p. 47; id. P. Z. S. 1868, p. 527.

Spheniscus papua, Schl. Mus. Pays Bas, VI. Urinat. p. 5 (1867: Falkland Isl.).

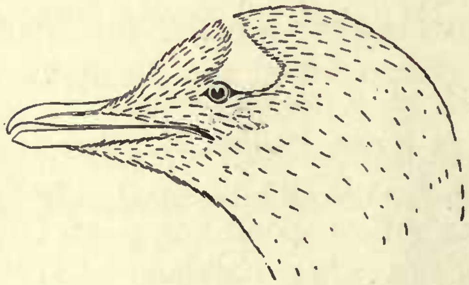
Pygoscelis papuensis, Van der Hoeven, teste Gray Hand-List B. III. p. 98 (1871).

Pygoscelis tæniatus, Coues, Proc. Acad. Philad. 1872, p. 195.

Pygosceles tæniatus, Scl. & Salv. Nomencl. Av. Neotr. p. 151 (1873); iid. P. Z. S. 1878, p. 653; Scl. P. Z. S. 1879, p. 311; Scl. & Salv. Voy. Chall. II. Birds, p. 124 (1881: Falkland Isl.).

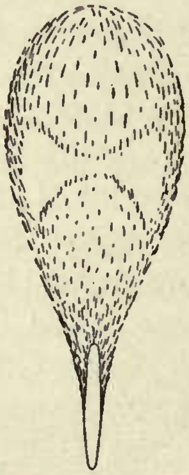
Pygoscelis tæniata, Oust. Sci. Miss. Cap Horn, p. B. 321 (1891): Moseley, Notes Voy. Chall. p. 151 (1892); Donald, Proc. Roy. Phys. Soc. Edinb. XII. p. 334 (1894). Vallent, Journ. Inst. Cornwall, XIV. p. 352 (1901: Falklands).

FIG. 55.



Pygoscelis papua. Profile. ⅓ natural size.

FIG. 56.



Pygoscelis papua. Head from above. ⅓ natural size.

GENERAL DESCRIPTION.

Size (adult).—Total length, about 30 inches.

Culmen (gape to tip), 3.65 inches.

Culmen (from nasal feathers to tip), 1.8 inches.

Wing (shoulder to tip), 9 inches.

Tail, 6 inches.

Color (adult).—General color of upper parts greyish slate; lower parts white.

Head: Brownish black, with a conspicuous broad white band curving backward across the crown from the region between the eyes. In many individuals there are numbers of scattered white plumes about the head.

Neck: Brownish black like the head and characterized in most individuals by similar scattered white plumes.

Back: Slate grey, each feather having a dark base and a bluish-grey tip.

Tail of 16 feathers in adults, colored like the back.

Wings (Flippers): Greyish brown externally, *edged on both sides with white.*

Inner surface white with a dusky or black patch at the extremity.

Under parts: Chest, breast and rest of under parts pure white.

Worn adult birds present a mottled brown and black appearance due to the blue grey ends of the feathers being abraded or worn off.

"Iris rich brown, pupil lozenge-shaped when contracted; lower mandible and lower margin of upper mandible brilliant orange, upper portion and tip of upper mandible black; tarsus and feet orange colored, claws black." (Kidder.)

Immature birds differ from the adults in having noticeably smaller bills and in having the chin and throat white mottled with dusky or greyish black.

In young birds there are eighteen tail feathers the outer one on each side being white and being *moulted and not replaced* when the adult plumage is assumed.

Geographical Range.—Falkland Islands, South Georgia, Marion Island, Kerguelen Islands, Heard Island, Macquarie Islands, Paulet Island and Dundee Island.

The Princeton Expeditions did not explore the Falkland Islands and the Gentoo Penguin is not included in the species in the collections made. The descriptions are based on material in British Museum of Natural History.

Of the breeding of *Pygoscelis papua* as observed by him at Kerguelen Island Dr. Kidder writes: "Had already begun to lay September 10th, selecting the top of a mound of *Azorella* (a densely growing plant on the island) and scratching therein a shallow cavity. But one egg was found at any time in a nest; yet we have good reason for believing that these penguins rear two young in a season, laying a second egg about two months after the first, and before the young bird has left the nest. The eggs are obtusely ellipsoid, some specimens being almost spherical; white with a very pale greenish tint." (Kidder, Bull. U. S. Nat. Mus., 3, p. 18, (1876).)

Pygoscelis antarctica (Forster).

Aptenodytes antarctica, Forst. Nov. Comm. Götting. III. p. 141, pl. IV. (1781); Miller, Cim. Phys. pl. XL (1796); Forst. Descr. Anim. p. 56 (1844).

Antarctic Pinguin, Lath. Gen. Syn. III. pt. 2, p. 565 (1785).

Aptenodytes antarcticus, Gm. Syst. Nat. I. p. 557 (1788).

Aptenodyta antarctica, Bonn. Enc. Méth. I. p. 69, pl. 17 fig. 4 (1790).

Pinguinaria antarctica, Shaw in Miller, Cim. Phys. p. 78 (1796).

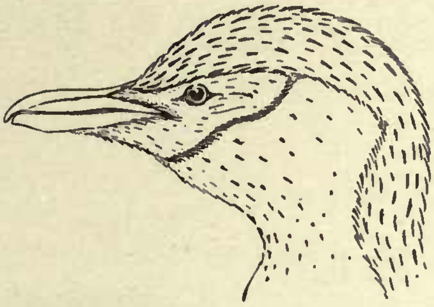
Spheniscus antarcticus, Stephens in Shaw's Gen. Zool. XIII. p. 67 (1825); Reichenb. Syst. Av. Natatores pl. II fig. 737 (1848); Schl. Mus. Pays-Bas, VI. Urinat. p. 5 (1867: Falkland Isl.).

Pygoscelis antarctica, Gray, List B. pt. III. p. 154 (1844); Bp. C. R. xlii. p. 775 (1856); Hyatt, Proc. Bost. Soc. Nat. Hist. XIV. p. 250 (1871); Coues, Proc. Acad. Philad. 1872, p. 199; Milne Edwards, Ann. Sci. Nat. (6) IX. Art. IX. p. 59 (1880); Steinen, Internat. Polarforsch. Deutschen. Exped. II. pp. 237, 276 (1890: S. Georgia); Oust. Sci. Miss. Cap Horn p. B. 322 (1891); Donald, Proc. Roy. Soc. Edinb. XX. p. 174 (1894); id. Proc. Roy. Phys. Soc. XII, p. 334 (1894); Grant, Cat. B. Brit. Mus. XXVI, p. 634 (1898); Sharpe, Hand-List B. I. p. 118 (1899).

Eudyptes antarctica, Gray, Gen. B. III. p. 641 (1846); Reichenb. Syst. Av. Natatores, pl. cclxiv. fig. 2221 (1848); Gray, Hand-List B. III. p. 99, no. 10798 (1871); Scl. Ibis, 1894, p. 500.

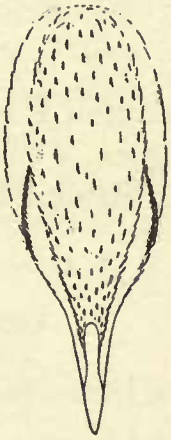
Eudyptes antarcticus Abbott, Ibis, 1861, p. 164; Scl. P. Z. S. 1861, p. 47 (Falkland Isl., accidental visitor); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 250 (1888; Falkland Isl.).

FIG. 57.



Pygoscelis antarctica. Profile head and neck. ⅓ natural size.

FIG. 58.



Pygoscelis antarctica. Head from above. ⅓ natural size.

GENERAL DESCRIPTION.

Size (adult).—Total length, about 30 inches. Culmen (gape to tip), 2.65 inches. Culmen (from nasal feathers to tip), 1.4 inches. Wing (from shoulder to tip), 7.5 inches.

Color (adult).—Upper parts much as in *P. papua* but brighter, the tips of the feathers being of a lighter tint.

Lower parts generally white.

Head: Top of the head of the same bluish grey prevailing on the upper parts, this color reaching to the nasal feathering, interrupted by white lores and a white band over each eye.

Neck: Above like the back; below and on the sides white, broken by a narrow black line crossing the throat in a semi-circle from ear to ear.

Back: Bluish-grey; each feather with a dark base and a bluish grey tip.

Wing: (Flipper). Outer surface bluish grey like the back; edged posteriorly with white. Inner surface white, with a blackish outer margin and a blackish terminal spot.

Tail: Colored like back and composed of twelve feathers.

Under parts: White.

In worn plumage the adult bird becomes brownish black above by the wearing off of the blue-grey margins to the feathers.

Young birds have their tail composed of fourteen feathers. The outer one on each side is shed at the first moult and not replaced.

Geographical Range.—Falkland Islands, Weddell Island, and South Georgia.

The Princeton Expeditions did not collect representatives of the Antarctic penguin. The description is based on material in the British Museum of Natural History.

Genus CATARRHACTES Brisson.

	Type.
Catarractes, Briss. (nec Moehring, 1752) Orn. VI. p. 102 (1760).	*C. chrysocome.*
Eudyptes, Vieill. Analyse, pp. 67, 70, (1816); Hyatt, Pro. Bost. Soc. Nat. Hist. XIV. p. 244 (1872)	*C. chrysocome.*
Chrysocoma, Steph. in Shaw's Gen. Zool. XIII. pt. i. p. 57 (1825).	*C. chrysocome.*
Microdyptes, M.-Edwards, Ann. Sci. Nat. (6) IX. art. 9, p. 58 (1880); Reichenow & Schalow, J. f. O. 1882, p. 112.	*C. chrysocome.*
Catarrhactes, Ogilvie-Grant, Cat. Bds. Brit. Mus. XXVI. p. 635 (1898); Sharpe, Hand-List Bds. I. p. 118 (1899). = *Catarractes.*	

Geographical Range.—Tierra del Fuego, the Falkland Islands to the New Zealand Archipelago.

CATARRHACTES CHRYSOCOME (Forster).

The Penguin, Edwards, Nat. Hist. B. i. p. 49, pl. 49 (1748) young.
Phaëthon demersus, Linn. Syst. Nat. i. p. 135 (1758) ex Edwards.
Le Gorfou, Briss. Orn. VI. p. 102 (1760).
Phaëton demersus, Linn. Syst. Nat. i. p. 219 (1766).
The Red-footed Pinguin, Pennant, Phil. Trans. LVIII. p. 98 (1768); Lath. Gen. Syn. III. pt. 2, p. 572 (1785).
Le Manchot sauteur, Bougainville, Voy. Antom du Monde p. 69 (1771); Buff. Hist. Nat. Ois. X. p. 224 (1783).
Le Manchot hupé de Siberie, D'Aubent. Pl. Enl. X. pl. 984 (1781).

Aptenodytes chrysocome, Forst. Nov. Comment. Götting. III. p. 135, pl. i (1781: Falkland Isl.); Gm. Syst. Nat. i. p. 555 (1788); Lath. Ind. Orn. II. p. 878 (1790); Forst. Descr. Anim. p. 99 (1844); Peale, U. S. Expl. Exped. p. 259 (1848); Abbott, Ibis, 1860, p. 337 (Falkland Isl.).

Aptenodytes catarractes, Forst. Nov. Comment. Götting. III. p. 145 (1781); Gm. Syst. Nat. i. p. 558 (1788); Lath. Ind. Orn. II. p. 881 (1790).

Crested Pinguin, Lath. Gen. Syn. III. pt. 2, p. 561 (1785: Falkland Isl.) ex D'Aubent.

Aptenodyta gorfua, Bonn. Enc. Méth. I. p. 68 (1790).

Aptenodyta chrysocome, Bonn. tom. cit. p. 68, pl. 17. fig. 2, pl. 18. fig. 4 (1790).

Pinguinaria cirrhata, Shaw in Miller's Cim. Phys. p. 92 (1796).

Aptenodytes cristata, Mill. Cim. Phys. pl. xlix (1796).

Pinguinaria cristata, Shaw & Nodd. Nat. Misc. XI. pl. ccccxxxvii (1800).

Chrysocoma saltator, Stephens in Shaw's Gen. Zool. xiii. p. 58 (1825).

Hopping Gorfou, Stephens, tom. cit. pl. viii.

Chrysocoma catarractes, Stephens, tom. cit. p. 61.

Stonecracker Penguin, Weddell, Voy. South Pole, p. 57 (1825).

Catarrhactes chrysocome, Vieill. Gal. des Ois. II. p. 245, tab. 298 (1825); Grant, Cat. B. Brit. Mus. XXVI. p. 635 (1898); Sharpe, Hand-List B. I. p. 118 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 144 (1901).

Catarhactes chrysocome, Brandt. Bull. Acad. St. Pétersb. II. p. 315 (1837).

Eudyptes demersus, Gray, List B. iii. p. 155 (1844: Falkland Isl. nec. spec. d. & g).

Eudyptes chrysocome, Gray, Gen. B. III. p. 641 (1846); Scl. P. Z. S. 1860, p. 390 (Falkland Isl.); Gould, t. c. p. 418; Abbott, Ibis, 1861, p. 164; Pelz. Reis. Novara, p. 140, pl. V (1865: St Paul Isl.); Cunn. Nat. Hist. Str. Magell. p. 292 (1871: Falkland Isl.); Hyatt, Proc. Bost. Soc. N. H. xiv. p. 251 (1872); Coues, Proc. Acad. Philad. 1872, p. 202 (part); Scl. & Salv. Nomencl. Av. Neotr. p. 151 (1873); iid. P. Z. S. 1878, p. 654 (Falkland Isl.); Scl. P. Z. S. 1879, p. 311 (loc. cit: eggs); Scl. & Salv. Voy. Chall. II. Birds, p. 128, pl. xxx (1881); Burm. An. Mus. Nat. Buenos Aires, III. pt. X. p. 250 (1888: Straits of Magellan: E. Patagonia: Falkland Isl.); id. pt. XI. p. 321 (1890: Chupat Valley). Hall, Ibis, 1900, p. 32: Bartram, Zeitschr. Naturw. 74, pp. 172, 236 pls. 3 and 4 [Anatomy] (1901); Sharpe, Bull. Brit.

Orn. Club. xii. p. 67 (1902 : Falklands); Wohlaur, Zeitschr. Morph. iv. pp. 149–178, pls. 4 and 5 (1902); Männich, Jena Zeitschr. xxxvii. pp. 1–40, pl. i. (1902); Lewin, t. c. pp. 40–82 pls. 2 and 3.

Catarractes chrysocome, Reichenb. Syst. Av. Natatores, pl. 1^A fig. 14^b (1848).

Catarractes chrysolopha (nec Brandt), Reichenb. *t. c.* pl. 1^A figs. 12^b 13^b and 14.

Eudyptes chrysocoma, Scl. P. Z. S. 1861, p. 47 (Falkland Isl.); Milne Edwards, Ann. Sci. Nat. (6) IX art. 9 p. 46, pl. ii (1880).

Eudyptes nigrivestis, Gould, P. Z. S. 1860, p. 418 (Falkland Isl.) id. Ann. & Mag. N. H. (3) vii. p. 218 (1861); Scl. P. Z. S. 1861, p. 46; Abbott, Ibis, 1861, p. 163; Scl. P. Z. S. 1868, p. 527; Cunn. Nat. Hist. Str. Magell. p. 292 (1871 : Falkland Isl.).

Spheniscus chrysocome, Schl. Mus. Pays-Bas, VI. Urinat. p. 6 (1867: Falkland Isl.).

Spheniscus chrysolophus (nec Brandt) Schl. tom. cit. p. 7 (Falkland Isl.).

Spheniscus catarractes, Schl. tom. cit. p. 8.

Eudyptes catarractes, Gray, Hand-List B. III. p. 98 no. 10791 (1871).

Eudyptes nigriventris (err.), Gray, Hand-List B. III. p. 98 no. 10794 (1871) Falkland Isl.

Eudyptes chrysolopha (nec Brandt), Coues, Proc. Acad. Philad. 1872, p. 204.

Eudyptes catarrhactes, Coues, tom. cit. p. 201.

Eudyptes filholi, Hutton, Proc. Linn. Soc. N. S. W. III. p. 334 (1878: Campbell Isl.).

Eudyptula serresiana, Oust. Ann. Sci. Nat. (6) VIII. art. 4, (1878: Port Churruca, Tierra del Fuego).

Eudyptes saltator, Sharpe, Phil. Trans. (extra vol.) 168, p. 160, pl. VIII. fig. 1 (1879: Kerguelen); Moseley, Notes Voy. Chall. pp. 100, 102, 103, 108, 109, 110, 114, 170 cum fig. (1892).

Microdyptes serresiana, Milne Edwards, Ann. Sci. Nat. (6) IX. art. 9, p. 58, pl. 20 (1880): Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 242, 334 (1891).

Eudyptes chrysocoma Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 238, 334 (1891).

General description.

Size (adult).—Total length, about 25 inches.

Culmen, gape to tip, 1.9 to 2.35 inches.

Nasal feathers to tip, 1.15 to 1.55 inches.

Wing (shoulder to tip), 6.6 to 7.0 inches.

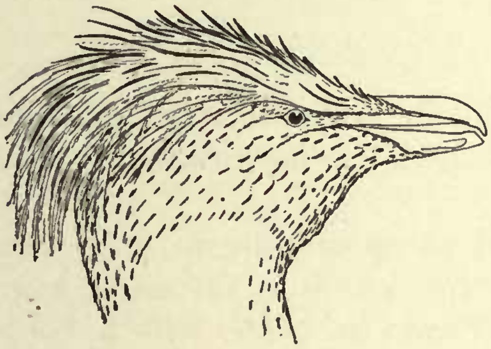
Tail, 3.4 to 4.4 inches.

Apparently the Falkland Island examples of *C. chrysocome* represent the average minimum and those from the New Zealand group the average maximum variation in size.

Color (adult). — The general color above is dark slate; and below pure white.

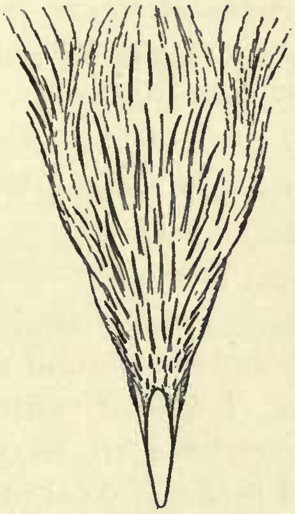
Head: The top of the head is black, the feathers of the crown and occiput forming a long crest, the longest feathers measuring over three inches. A golden yellow stripe begins behind the nasal feathers and extends backward above the eye, along the sides of the crown. The feathers of the posterior portion of this stripe are lengthened like those of the crown and occiput with which they mingle. The longest of these feathers measure quite three and a half (3.5) inches. Sides of the head and face smoky black.

Fig. 59.



Catarrhactes chrysocome. Profile. ⅓ natural size.

Fig. 60.



Catarrhactes chrysocome. Head from above. ⅓ natural size.

Neck: Dark slate above, and white below, except the throat and chin which are deep smoky black like the sides of face and head.

Back: Dark slate; the feathers are pointed in shape, black or dusky in color, and edged externally with dark bluish slate color.

Wing (Flipper): Upper surface colored like the back, and edged posteriorly with white. Lower surface white, with the anterior margin, the tip and an area on the basal portion of the posterior margin dusky or black.

Tail: Like the back in color and composed of sixteen (16) feathers.

"Iris deep pink; bill orange; tarsus and toes white." (Kidder.)

"Immature birds differ in having the chin ashy white and the throat blackish. In still younger examples the throat is ashy white, and the yellow superciliary crest merely indicated by a yellowish-white line. (Mus. Rothschild)." (W. R. Ogilvie-Grant, Cat. Bds. Brit. Mus. XXVI. p. 637, 1898.)

Geographical Range.—Tierra del Fuego and the Falkland Islands; the Cape Seas, and Kerguelen Island; Tasmania and South Australia and the New Zealand Group.

The Crested Penguin was not obtained by the Princeton Expeditions to Patagonia. The description is based on material in the British Museum of Natural History.

At Inaccessible Island, Dr. Mosely had an opportunity to study this penguin and his account with some slight omissions is as follows: "After breakfast, I landed, with one of the Germans as guide, with a large party. (October 16, 1873.) As we approached the shore, I was astonished at seeing a shoal of what looked liked extremely active very small porpoises or dolphins. I could not imagine what the things could be, unless they were indeed some most marvellously small cetaceans; they showed black above and white beneath, and came along in a shoal of fifty or more, from seaward toward the shore at a rapid pace, by a series of successive leaps out of the water, and splashed into it again, describing short curves in the air, taking headers out of the water and headers into it again; splash, splash, went this marvellous shoal of animals, till they went splash through the surf on to the black stony beach, and there struggled and jumped up amongst the boulders and revealed themselves as wet and dripping penguins, for such they were.

"Much as I had read about the habits of penguins, I never could have believed that the creatures I saw thus progressing through the water, were

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birds, unless I had seen them to my astonishment thus make on shore. I had subsequently much opportunity of watching their habits.

"We landed on the beach; it was bounded along its whole stretch at this point by a dense growth of tussock. The tussock (*Spartina arundinacea*), is a stout coarse reed-like grass; it grows in large clumps, which have at their base large masses of hard woody matter, formed of the bases of old stems and roots.

"In penguin rookeries, the grass covers wide tracts with a dense growth, like that of a field of standing corn, but denser and higher, the grass reaching high over one's head.

"On the beach were to be seen various groups of penguins, either coming from or going to the sea. There is only one species of penguin in the Tristan group: this is, *Eudyptes saltator*, or the 'well diving jumper.' The birds stand about a foot and a half high; they are covered, as are all penguins, with a thick coating of close set feathers, like the grebe's feathers, that muffs are made of. They are slate grey on the back and head, snow white on the whole front, and from the sides of the head projects backwards on each side a tuft of sulphur yellow plumes. The tufts lie close to the head when the bird is swimming or diving, but they are erected when it is on shore, and seem then almost by their varied posture, to be used in the expression of emotions, such as inquisitiveness and anger.

"The bill of the penguin is bright red, and very strong and sharp at the point, as our legs testified before the day was over; the iris is also red. The penguin's iris is remarkably sensitive to light. When one of the birds was standing in our 'work room' on board the ship with one side of its head turned towards the port, and the other away from the light, the pupil on the one side was contracted almost to a speck, whilst widely dilated on the other. . . . The birds are subject to great variations in the amount of light they use for vision, since they feed at sea at night as well as in the day time.

"Most of the droves of penguins made for one landing-place, where the beach surface was covered with a coating of dirt from their feet, forming a broad tract, leading to a lane in the tall grass about a yard wide at the bottom, and quite bare, with a smoothly beaten black roadway; this was the entrance to the main street of this part of the 'rookery,' for so these penguin establishments are called.

"Other smaller roads led at intervals into the rookery to the nests near its border, but the main street was used by the majority of birds. The birds took little notice of us, allowing us to stand close by, and even to form ourselves into a group for the photographer, in which they were included.

"This kind of penguin is called by the whalers and sealers 'rock hopper,' from its curious mode of progression. The birds hop from rock to rock with both feet placed together, scarcely ever missing their footing. When chased, they blunder and fall amongst the stones, struggling their best to make off.

"With one of the Germans as guide, I entered the main street. As soon as one was in it, the grass being above one's head, one was as if in a maze, and could not see in the least where one was going to. Various lateral streets lead off on each side from the main road, and are often at their mouths as big as it; moreover, the road sometimes divides for a little and joins again; hence it is the easiest thing in the world to lose one's way.

"You plunge into one of the lanes in the tall grass which at once shuts out the surroundings from your view. You tread on a slimy black damp soil composed of the birds' dung. The stench is overpowering, the yelling of the birds perfectly terrifying; I can call it nothing else. You lose the path, or perhaps are bent from the first in making direct for some spot on the other side of the rookery.

"In the path only a few droves of penguins, on their way to and from the water are encountered, and these stampede out of your way into the side alleys. Now you are, the instant you leave the road, on the actual breeding ground. The nests are placed so thickly that you cannot help treading on eggs and young birds at almost every step.

"A parent bird sits on each nest, with its sharp beak erect and open, ready to bite, yelling savagely 'caa, caa, urr, urr,' its red eye gleaming and its plumes at half cock, and quivering with rage.

"These penguins make a nest which is simply a shallow depression in the black dirt scantily lined with a few bits of grass or not lined at all. They lay two greenish white eggs about as big as duck eggs, and both male and female incubate." (H. M. Moseley, M.A., F.R.S., "Notes by a Naturalist on the 'Challenger,'" 1879, pp. 117, 119, 120, 121.)

"Before going on board we went to see a collection of penguins from various localities in the islands, collected by the Zoölogical Society's keeper Secante for the gardens. Five species were represented — *i. e.*, the king (*Aptenodytes pennanti*), jackass (*Spheniscus magellanicus*), gentoo (*Eudyptes chrysocome*), macaroni (*Pygoscelis wagleri*), and rock-hopper (*Eudyptes nigrivestis*); and they formed a most amusing assemblage — some prancing up and down, with their little wings stuck out, with an air of bustle and infinite self-importance, some walking slowly up to us, and gazing at us with solemn curiosity, while others remained stationary and apparently lost in thought.

"Of these species the rock-hopper (*Eudyptes nigrivestis*) is perhaps the most common at the Falkland Islands; and two large 'rookeries,' as they are termed, of these birds occur not very far from Stanley — one at Kidney Island, on the southern side of the entrance to Berkeley Sound, and the other at Sparrow Cove, off Port William. Circumstances did not, to my regret, permit of my visiting either of these, but I extract the following short account of that at Sparrow Cove from Captain Mayne's Journal: 'The rookery was in a sort of small cove, the sides of which, though not perpendicular, were very steep, and about 100 feet high; the entrance to the cove was narrow and steep, with rugged bluff rocks on either side, the whole making a kind of rugged amphitheatre, with water for the pit. All the sides were rugged, with projecting knobs of rocks jutting out in all directions, and every part of the whole of this was covered with penguins. My estimate of the number was the lowest made, and I guessed it at 20,000; but there might have been any number between that and 50,000 or 60,000.'" (Cunn. Nat. Hist. Str. Magell., 1871, pp. 292–293.)

CATARRHACTES CHRYSOLOPHUS Brandt.

Macaroni Penguin, Weddell, Voy. South Pole, p. 57 (1825: South Georgia).
Catarhactes chrysolophus, Brandt, Bull. Acad. St. Petersb. II. p. 315 (1837).
Eudyptes demersus (nec Linn.) Gray, List B. part III. p. 155 (1844).
Eudyptes chrysolophus, Gray, Gen. B. III. p. 641, pl. 176 fig. 1 (1846); Scl. P. Z. S. 1860, p. 390 (Falkland Isl.), 1861, p. 47; Abbott, Ibis, 1861, p. 163; Scl. P. Z. S. 1868, p. 527; Hyatt. Proc. Bost. Soc. Nat. Hist. XIV. p. 250 (1872: Falkland Isl.); Scl. & Salv. P. Z. S. 1878, p. 654; Scl. P. Z. S. 1879, p. 311 (Falkland Isl.: eggs); Milne

Edwards, Ann. Sci. Nac. (6) IX. art 9, p. 53 (1880); Scl. & Salv. Voy. Chall. II. Birds, p. 127, pl. xxx (1881: Falkland Isl.): breeding); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 250 (1888: Falkland Isl.), part XI. p. 321 (1890); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 320 (1891).

Eudyptes chrysocome (nec Forst.), Abbott, Ibis, 1860, p. 337 (Falkland Isl.; breeds in Nov.).

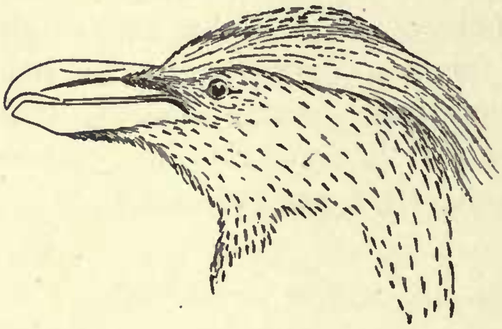
Eudyptes diadematus, Gould, P. Z. S. 1860, p. 419 (Falkland Isl.); Scl. 1861, p. 46 (loc. cit.); Abbott, Ibis, 1861, p. 163; Coues, Proc. Acad. Philad. 1872, p. 206.

Eudyptes chrysolopha, Gray, Hand-List B. III. p. 98, no. 10792 (1871).

Spheniscus diadematus, Schl. Mus. Pays-Bas, VI. Urinat. p. 8 (1867: pt. Falkland Isl.).

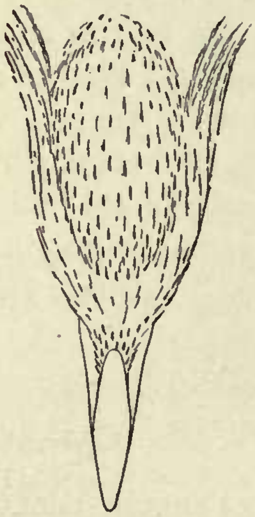
Catarrhactes chrysolophus, Grant, Cat. B. Brit. Mus. XXVI. p. 641 (1898); Sharpe, Hand-List B. I. p. 118 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 144 (1901).

FIG. 61.



Catarrhactes chrysolophus. Profile head and neck. ⅓ natural size.

FIG. 62.



Catarrhactes chrysolophus. Head from above. ⅓ natural size.

GENERAL DESCRIPTION.

Size (adult males).—Total length, about 30 inches.

Bill: Gape to tip, 2.8 to 2.9 inches.

Nasal feathers to tip, 2.0 to 2.05 inches.

Exposed culmen, 2.4 to 2.55 inches.

Wing, from shoulder to tip, 8.0 to 8.1 inches.

Tail, 3.5 to 3.9 inches.

Adult female birds are somewhat smaller than adult males, and the size of the bill varies much with age, being least developed in immature full grown birds of the previous year.

Color (adult). — The general color of the upper parts is similar to that of *C. chrysocome*, dark slate; the under parts white.

Head: The forehead, and back of the crown black, the feathers of the middle and sides of the crown being golden orange at their bases, with lengthened pointed black extremities. A superciliary stripe much as in *C. chrysocome* but only the posterior feathers elongated into plumes. They are uniform orange in color, the longest measuring about three (3) inches. The sides of the head and face smoky black.

Neck: Above like the back, dark slate; each pointed feather black or dusky, edged externally with dark bluish slate. Below white, except the upper neck, the throat and chin which are deep smoky black. The throat has a distinct silver shading.

Back: Similar to that of *C. chrysocome*. Some individuals have a well-defined patch of greyish white in the middle of the upper tail coverts.

Wing (Flipper): The upper surface is like the back, edged posteriorly with white. The lower surface is white, shading into blackish on the anterior margin, especially toward the tip. There is a black patch at the base of the posterior margin.

Tail, composed of fourteen (14) feathers and colored like the back.

Immature birds differ from adults in having the basal part of the feathers of the crown and superciliaries yellower, and in the much smaller size of the bill.

Geographical Range. — Falkland Islands, South Georgia, Prince Edward Island, Maroni Island, Kerguelen Island and Heard Island.

The Macaroni Penguin was not obtained by the Princeton Expeditions. The description is based on material in the British Museum of Natural History.

At Kerguelen Island Dr. Kidder describes this penguin breeding as follows:

"Begins to lay about the first of December, building among fallen rocks by the sea, making nests which are more complete than those of *Pygoscelis tæniata*, and lining them with dried grass. There are two eggs to a nest, white, with a faint tinge of greenish, obtusely ovoid in shape, and usually one is distinctly larger than the other. The shell is thick, friable, inelastic, and often smeared in parts with calcareous deposit. The external surface is punctured by minute pores, scattered widely apart, but presents no distinct surface-marking." (Natural History of Kerguelen Island, J. H. Kidder, M.D., Bull. No. 3, U. S. Nat. Mus., p. 19, 1876.)

Genus SPHENISCUS Brisson.

	Type.
Spheniscus, Brisson, Orn. vi. p. 96 (1760); Hyatt, Pro. Bost. Soc. Nat. Hist. xiv. p. 242 (1872); Ogilvie-Grant, Cat. Bds. Brit. Mus. xxvi. p. 648 (1898); Sharpe, Hand-List Bds. i. p. 119 (1899).	*S. demersus.*
Dypsicles, Gloger, Hand.-u. Hilfsb. p. 476 (1842) . . .	*S. demersus.*

Geographical Range.—Straits of Magellan, northward, on the west of South America to the coast of Peru and to the Galapagos Islands; on the east coast of South America to Rio Grande do Sul, Brazil. The Falkland Islands to the Cape of Good Hope.

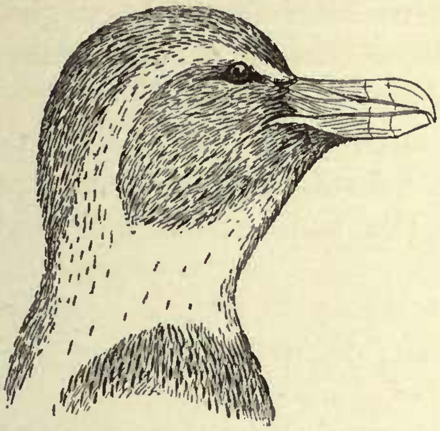
SPHENISCUS HUMBOLDTI Meyen.

Spheniscus humboldti, Meyen, Nov. Act. Acad. Cæs. Leop.-Carol. XVI. Suppl. p. 110, tab. 21 (1834); Scl. P. Z. S. 1867, pp. 337, 340 (Chile); Scl. & Salv. Nomencl. Av. Neotr. p. 151 (1873); Reid, Ibis, 1874, p. 83 (Juan Fernandez); Salv. Ibis, 1875, p. 377; Bartlett, P. Z. S. 1879, pp. 6–9, figs. 1, 2 (habits & moult); Scl. & Salv. Voy. Chall. II. Birds, p. 126 (1881: Chile); Grant, Cat. B. Brit. Mus. xxvi. p. 650 (1898); Sharpe, Hand-List B. I. p. 119 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 146 (1901); Phil. An. Mus. Chile XV. pls. 36 and 37 (1902).

Eudyptes humboldtii, Gray, Gen. B. III. p. 640 (1846); Pelz. Reis. Novara, p. 142 (1865: Chile); Gray, Hand-List B. III. p. 99, no. 10800 (1871).

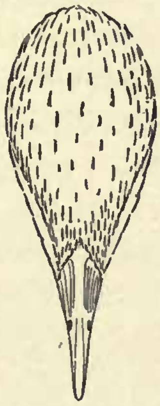
Spheniscus demersus, Schl. (nec Linn.) Mus. Pays-Bas Urinat. p. 10 (1867); Coues, Proc. Acad. Philad. 1872, p. 209 (part).

FIG. 63.



Spheniscus humboldti. Profile head and neck. ⅓ natural size.

FIG. 64.



Spheniscus humboldti. Head from above. ⅓ natural size.

GENERAL DESCRIPTION.

Size (adult). — Total length, about 27 inches.

Bill: Gape to tip, 3.05 inches.

Exposed culmen, 2.6 inches.

Wing, from shoulder 8.4 inches.

Tail, 1.4 inches.

Color (adult). — General color of the upper parts dusky or black anteriorly, shading into slate grey, which is brightest on the upper tail coverts.

The lower parts are white, except for a black band on the chest extending down each side of body to the tail.

Head: The forehead and middle of the crown as well as the sides of head and face black. This is broken by a white stripe, *beginning behind the eye*. This stripe does not extend, as in *S. demersus* forward above the eye to the lores, and is much narrower than the superciliary stripe in that species.

Neck: Above much like the middle of the crown in color becoming more greyish dusky where it joins the body. The chin and throat are black, and the rest of the neck, including the sides and lower parts, are pure white.

Back: Dusky grey anteriorly, becoming slate grey which is brightest on the rump and upper tail coverts.

Wing (flipper): Upper surface dark bluish grey. Lower surface white with areas of dusky, giving a mottled appearance.

Lower surface: Generally white. Across the chest is a curved black band which continues down each side of the body to the tail, and being widest on the sides and decreasing till it is narrowest along the thighs. *This band is wider throughout than is the similar decoration in S. demersus.*

Tail: Composed of twenty feathers and colored like the back.

Immature birds differ from the adults in having the chin, throat and sides of the head grey mixed with some white feathers. The sides and lower parts of the neck are smoky brown. The band across the chest and down the sides is absent.

Geographical Range.—Western coast of Chili and Peru.

Humboldt's Penguin was not collected by the several expeditions sent out by Princeton University and the material forming a basis for the description here given is in the British Museum of Natural History.

"On the 24th of January, 1878, a specimen of Humboldt's Penguin (*Spheniscus humboldti*) was purchased from a dealer in Liverpool. The bird was in poor condition when received, and very dirty, but perfectly tame, following one about, and seeming pleased to be taken on the lap and nursed like an infant. At first it required to be fed by hand; for if its food was placed on the ground the bird took no notice of it, although hungry. After a few days, if living fishes were thrown to it and the bird saw them jumping about on the floor, it began to pick up the fishes and swallow them. From this and from the colour and condition of its plumage, I have no doubt that the bird had been reared from the nest, and had never previously fed itself.

"It was some days before the penguin ventured into the water; but after the first wash the bird rapidly improved; the feathers became clean; its appetite increased; and it passed much time in the water, evidently gaining strength and weight. About this time it frequently uttered its loud braying jackass-like notes, and became fat and in full vigour. Figure 1 (p. 7) gives a very faithful representation of the bird at this time. About the 22nd of February, the bird appeared dull, and with half-closed eyes moped about: it became ill-tempered and spiteful, bit at any one who offered to touch it, and avoided going into the water. The bird looked larger than before, its feathers standing out from its body during this condition; but its appetite continued good, and it fed as freely as usual.

"In a few days the feathers began to fall off from all parts of the bird, not, as birds usually moult, a few feathers at a time, but in large quantities: for instance, the bird generally remained stationary during the night, and in the morning there was left round it a circle of cast feathers that had been shed during the night. So rapidly did the process of moulting go on, that by the 7th of March the bird had entirely renewed its plumage, and appeared in the adult dress, as represented in figure 2 (p. 8). The manner in which the flipper-like wings cast off the short scale like-feathers was remarkable: they flaked off like the shedding of the skin of a serpent; the new feathers being already plainly visible, the old feathers were pushed off by the new ones; this was very clearly noticeable, as many of the old feathers could be seen still attached to the tips of the new feathers, so that the bird was entirely covered with its new plumage before the old feathers dropped off. The bird had by these means entirely changed its dress and appearance in certainly less than ten days. It looked thinner on account of the shortness of its new feathers, and doubtless from a decrease in bulk, consequent upon the rapid developement of the entire plumage. The bird avoided the water for a few days before it began to moult, and also after it had renewed its feathers; it soon, however, became lively, its eyes assumed their usual form and brightness, it took freely to the water, in which it passed the greater part of the day. Its movements in the water when swimming, diving, and pursuing fish were most extraordinary; it seemed, as it were, to fly under water, using its flipper-like wings after the fashion of a Seal.

"The Penguin appears so much at home in the water, so perfectly adapted to an aquatic life, that one would conclude that, but for the necessity of breeding and moulting, this bird would be far more at home on the ocean than in passing even a short period on land, being so ill-adapted in form for travelling on shore." (Bartlett, P. Z. S. 1879, pp. 6–9.)

SPHENISCUS MAGELLANICUS (Forster).

Aptenodytes magellanica, Forst. Nov. Comm. Götting. III. p. 143 tab. V (1781: Tierra del Fuego: Falkland Isl.); Gm. Syst. Nat. i. p. 557 (1788); Miller, Cim. Phys. pl. XXXIV (1796).

Magellanic Pinguin, Lath. Gen. Syn. III. pt. 2, p. 569 (1785: Straits of Magellan).

Aptenodyta magellanica, Bonn. Enc. Méth. I. p. 69 pl. 18 (1790).

Pinguinaria magellanica, Shaw in Miller, Cim. Phys. p. 67 (1796).

Spheniscus magellanicus, Stephens in Shaw's Gen. Zool. xiii. p. 65 (1825); Gray, List B. pt. iii. p. 155 (1844: Hermit Island); id. Gen. B. iii. p. 640 (1846); Reichenb. Syst. av. Natatores, pl. ii. fig. 736 (1848); Cass. U. S. Expl. Exped. p. 353 (1858: Orange Bay, Cape Horn); Scl. P. Z. S. 1860, p. 390 (Falkland Isl.); id. P. Z. S. 1861, p. 47; Abbott, Ibis, 1860, p. 163, Falkland Isl. (permanent resident); Scl. P. Z. S. 1868, p. 527 (E. Falkland Isl.); id. & Sal. Ibis. 1869, p. 284 (Sta. Magdalena); iid. Nomencl. Av. Neotr. p. 151 (1873); iid. P. Z. S. 1878, p. 653; Scl. P. Z. S. 1879, p. 311; Scl. & Salv. Voy. Chall. II. Birds, p. 125, pl. XXVIII (1881: Port Churrucha: Magellan: Falkland Isl.); Sharpe, P. Z. S. 1881, p. 17 (Tom Bay); Scl. P. Z. S. 1882, p. 547; Vincig. Faun. Amer. Austr. Boll. Soc. Geogr. Ital. XXI. p. 800 (1884); Scl. Ibis, 1889, p. 144 (Rio de la Plata); Burm. An. Mus. Nac. Buenos Aires III. Part X. p. 249 (1888: Str. Magellan); Oust. Miss, Cap Horn Ois. p. 243 (1891); Moseley, Notes, Voy. Chall. p. 486 (1892); Aplin, Ibis, 1894, p. 212 (Maldonado); Grant, Cat. B. Brit. Mus. XXVI. p. 651 (1898); Sharpe, Hand-List B. I. p. 119 (1899); Salvad. Ann. Mus. Genov. (2) xx. p. 634 (1900: Leones Isl., Santa Cruz, Jan.; Penguin Rookery, Feb.); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 146 (1901); Vallent. Journ. Inst. Cornwall, XIV. p. 350 (1901: Falklands).

Aptenodytes brasiliensis, Forst. Descr. Anim. p. 355 (1844).

Eudyptes brasiliensis, Gray, Gen. B. III. p. 640 (1846).

Aptenodytes magnirostris, Peale, U. S. Expl. Exped. Birds, p. 263, pl. 71, fig. 1 (1848: Tierra del Fuego).

Spheniscus demersus (nec Linn.), Cass. U. S. Expl. Exped. Birds, p. 354 (1858: young; Cape Horn); Cunn. Ibis. 1868, p. 489 (Santa Magdalena, Dec.); Hyatt, Proc. Bost. Soc. Nat. Hist. XIV. p. 248 pt. (1872: Tierra del Fuego).

Aptenodytes demersa (nec Linn.), Abbott, Ibis, 1860, p. 336 (Falkland Isl.).

Eudyptes magellanica Gray, Hand-List B. III. p. 99, no. 10799 (1871).

Spheniscus demersus var. *magellanicus*, Coues, Proc. Acad. Philad. 1872, p. 211 (Tierra del Fuego); Milne Edwards, Ann. Sci. Nat. (6) IX. art. IX. p. 63 (1880).

Spheniscus trifasciatus Philippi, Zeit. ges. Naturw. (2) VII. p. 121, pls. 1, 2 (1872: Valdivia, Chile).

GENERAL DESCRIPTION.

Size (adult male).—Total length, about 28 inches.

Bill: Gape to tip, 2.8 inches.

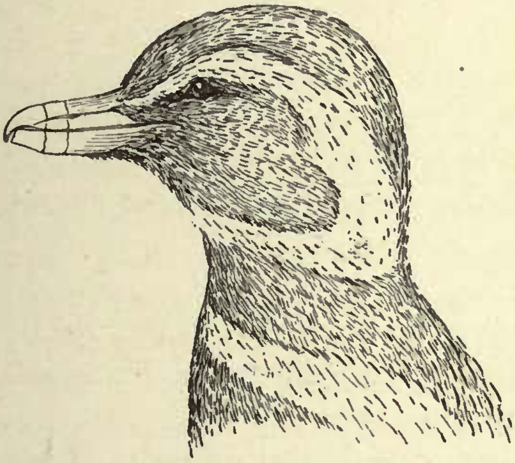
Exposed culmen, 2.15 inches.

Wing (from shoulder to tip), 9.0 inches.

Tail, 1.4 inches.

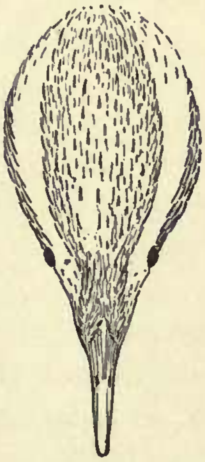
The adult female is appreciably smaller than the adult male.

FIG. 65.



Spheniscus magellanicus. Profile head and neck. ⅓ natural size.

FIG. 66.



Spheniscus magellanicus. Head from above. ⅓ natural size.

Color (adult).—The coloring throughout is much like that of *S. humboldti*, *but there is an additional band of brownish black across the lower neck*, between the dark area of the throat and the curved pectoral band. This brownish black band is broad and clearly defined, and connects with the dark area of the upper parts.

Wing (flipper): Above as in *S. humboldti*, and below white, dotted with many spots of black. This last marking varies much in individuals, being almost or quite obsolete in some examples.

Tail: Composed of twenty feathers and colored as in *S humboldti.*

Immature birds resemble those of a similar age of *S. humboldti.* The breast and belly however are less marked or almost devoid of blackish spots, and the under surface of the flippers is immaculate except at the tip and near the base.

"Iris brown; edges of eyelids *black;* bill horn-colour; feet in front black mottled with white, behind black all over." (Dr. Coppinger.)

"Bill black; legs grey spotted with black; claws black." (Dr. Coppinger.)

"Tom Bay, April 7, 1879. Iris brown; eyelids' edges black, not flesh-colour; bill horn-colour; feet in front black mottled with white, behind black all over.

"Male juv.: Tom Bay, February 17, 1879. Iris brown; eyelids black; bill black; legs grey spotted with black; claws black.

"Female: Tom Bay, April 5, 1879. Bill horn-colour; iris brown; legs in front grey spotted with black; behind black. (Sharpe, P. Z. S. 1881, p. 17.)

Geographical Range.—Tierra del Fuego and the coast of Patagonia. Coasts of South America, north on the west coast to central Chili, and on the east coast to Rio Grande do Sul, Brazil. The Falkland Islands and South Georgia.

The descriptions are based on examples of this penguin in the British Museum of Natural History. The Princeton Expeditions to Patagonia did not obtain representatives of the Magellanic penguin.

"I paid a visit to an island in False Bay, called Seal Island. It is a mere shelving rock on which it is only possible to land on very favorable occasions. The whole place is a rookery of the jackass penguin (*Spheniscus demersa*). It is an ugly bird as compared with the crested penguin of Tristan da Cunha; the bill is blunter, but the bird can nevertheless bite hard with it (all the penguins seem to bite rather than peck). The birds here nested on the open rock, which was fully exposed to the burning sun and occasional rain. It must not be supposed that either penguins or albatrosses are necessarily inhabitants of cold climates; a species of penguin and an albatross breed at the Galapagos Archipelago, almost exactly on the equator.

J. PIERPONT MORGAN PUBLICATION FUND

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PRINCETON UNIVERSITY EXPEDITIONS
TO PATAGONIA, 1896-1899

J. B. HATCHER
IN CHARGE

EDITED BY
WILLIAM B. SCOTT
BLAIR PROFESSOR OF GEOLOGY AND PALÆONTOLOGY, PRINCETON UNIVERSITY

VOLUME II, 2

ZOÖLOGY

PRINCETON, N. J.
THE UNIVERSITY
STUTTGART
SCHWEIZERBART'SCHE VERLAGSHANDLUNG (E. NÄGELE)
1915–27

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1896-1899

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WILLIAM EARL DODGE SCOTT ASSOCIATED WITH R. BOWDLER SHARPE
PRINCETON UNIVERSITY BRITISH MUSEUM NATURAL HISTORY

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BY

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STUTTGART
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VOLUME II—ORNITHOLOGY

Part II.

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R. BOWDLER SHARPE
BRITISH MUSEUM OF NATURAL HISTORY

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"There was not a blade of grass on the rock, but it was covered with guano, with little pools of filthy green water. The birds nested under big stones, wherever there was place for them; most of the nests were, however, quite in the open. The nests were formed of small stones and shells of a *Balanus*, of which there were heaps washed up by the surf, and of old bits of wood, nails, and bits of rope, picked up about the ruins of a hut which were rotting on the island, together with an old sail, some boat's spars, and bags of guano, evidently left behind by guano-seekers. The object of thus making the nest is no doubt to some extent to secure drainage in case of rain, and to keep the eggs out of water washing over the rocks; but the birds evidently have a sort of magpie-like delight in curiosities. *Spheniscus magellanicus* at the Falkland Islands, similarly collects variously colored pebbles at the mouth of its burrow. Two pairs of the birds had built inside the ruins of the hut.

"All the birds fought furiously, and were very hard to kill. They make a noise very like the braying of donkeys, hence their name; they do not hop, but run or waddle. They do not leap out of the water like the crested penguins when swimming, but merely come to the surface and sit there like ducks for a while, and dive again. We dragged off a number in the boat for stuffing, and took young and eggs; the old ones fought hard in the boat and tried to bite one another's eyes out." (Moseley, Notes Natur. Chall., 1879, pp. 155–156.)

"Not far from Stanley Harbour there are rookeries of the Magellan jackass penguin (*Spheniscus magellanicus*). The birds make large and deep burrows in the peat banks on the sea-shores, and large numbers make their burrows together, so that the ground is hollowed out in all directions.

"Round the mouths of their burrows and on the even surface of the banks, between the holes, the birds lay out pebbles which they must carry up from the sea-shore for the purpose. The pebbles are of various colours, and the birds seem to collect them from curiosity, at least there appears to be no other explanation of the fact. The edges of the birds' bills are excessively sharp, and one of them bit me as I was trying to secure it, and cut a strip out of my finger as clean as if it had been done with a razor." (Moseley, Notes Natur. Chall., 1879, p. 560.)

"But a no less curious sight was in store for us; for on climbing to the summit of one of the high banks, we beheld a company of penguins

(*Spheniscus magellanicus*), which, after standing erect and staring at us in a stupid manner for a few moments, shuffled off; their little wings hanging limp at their sides, and their dark gray and white colouring, and reeling movements, suggesting a drunk and disorderly funeral procession. When hard pressed they abandoned the erect position, and crouching down on all fours, if I may be permitted the expression, ran along like rabbits at a very rapid rate, using their wings as fore-legs, till they gained their burrows, fairly ensconed in which they faced their pursuers, and, slowly turning about their heads from side to side, barked and brayed in the most ridiculous manner, offering a stout resistance to being captured by biting most viciously with their strong bills. While contemplating one individual in its den, I was suddenly startled by a loud 'Ho-ho-ho-ho' close to me, and turning round perceived another bird, which had boldly walked out of a neighboring burrow, and was thus addressing me." (Cunn. Nat. Hist. Str. Magell., 1871, pp. 270–271.)

Order PROCELLARIIFORMES.

Sharpe, Classif. Birds, p. 71 (1891); id. Hand-List Bds. I. p. 120 (1899); Pycraft, P. Z. S. 1899, pp. 381–411, pls. xxii. and xxiii. (Osteology).

Family Procellariidæ.

Salvin, Cat. Bds. Brit. Mus. XXV. p. 342 (1896); Sharpe, Hand-List Bds. p. 120 (1899).

Subfamily Oceanitinæ.

Salvin, t. c. p. 358 (1896); Sharpe, t. c. p. 122 (1899).

Genus OCEANITES Keyserling & Blasius.

Type.

Oceanites, Keyserling & Blasius, Wirb. Eur. ii. pp. xciii. 131, 238 (1840); Coues, Proc. Acad. Sci. Philad. 1864,

p. 82; Forbes, Voy. Chall. Zool. iv. pt. xi. p. 56 (1882). Salvin, Cat. Bds. Brit. Mus. XXV. p. 358 (1896). Sharpe, Hand-List Bds. I. p. 122 (1899). . *O. oceanicus.*

Geographical Range.—Entire Southern Ocean. The Atlantic Ocean, north into northern portion of Temperate Zone.

OCEANITES OCEANICA (Kuhl).

Procellaria oceanica, Kuhl, Beitr. p. 136 (1820: ex Banks Icon. no. 12); Schl. Mus. Pays Bas, IV. Procell. p. 6 (1863: Chile); Scl. & Salv. Nomencl. Av. Neotr. p. 148 (1873).

Thalassidroma wilsoni, King, Zool. Journ. IV. p. 104 (1829: Straits of Magellan); Abbott, Ibis, 1861, p. 164 (Berkeley Sound, Falkland Islands, breeding); Cunningh. Nat. Hist. Str. Magell. p. 226 (1871); Vincig, Boll. Soc. Geogr. Ital. (2) IX. p. 799 (1884).

Thalassidroma oceanica, Gould, Voy. "Beagle," Birds, p. 141 (1841: Bahia Blanca); Gray, List B. Brit. Mus. part iii. p. 161 (1844); id. Gen. B. III. p. 648 (1844) Pelz. Reis. Novara, Vög. p. 144 (1865); Phil. & Landb. Cat. Av.C;hil. p. 46 (1868); Milne Edwards, Ann. Sci. Nat. (6) XIII. Art. IX. p. 18 (1882); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 248 (1888: Northern Patagonia to Straits of Magellan).

Oceanites oceanica, Sharpe, P. Z. S. 1881, p. 11. (Lat. 9° 17′ S., Long. 33° 5′ W.); id. Hand-List Bds. I. p. 122 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 150 (1901).

Oceanites oceanicus, Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 165, 332 (1891: Falklands); Salvin, Cat. Bds. Brit. Mus. XXV. p. 358 (1896); Salvad. Ann. Mus. Genov. (2) XX. p. 629 (1900: north of Rio Gallegos, April); Martens, Hamb. Magalh. Sammelr. Vög. p. 17 (1900: Patagonia); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 146 (1902).

GENERAL DESCRIPTION.

Size. Adult.—Total length, about 6.8 inches.
Wing, 6.1 inches.

Bill, 0.7 inch.

Tail, lateral rectrices, 2.7 inches; central rectrices, 2.45 inches.

Tarsus, 1.37 inches.

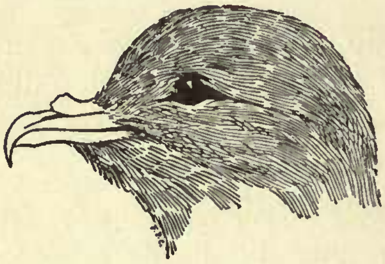
Color. Adult.—General color throughout sooty black.

Head: Sooty black, the forehead paler.

Neck: Sooty black.

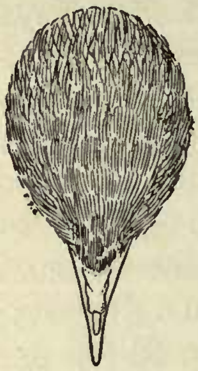
Back: Sooty black; the upper tail coverts immaculate white forming a conspicuous white area.

FIG. 67.



Oceanites oceanica. Profile of head. From material in the British Museum. Natural size.

FIG. 68.



Oceanites oceanica. Head from above. From material in the British Museum. Natural size.

Wing: Sooty black, except the greater wing coverts which are slaty greyish, with distinct whitish edging at the tips. The under wing coverts are sooty.

Tail black, with the shafts of the lateral rectrices white at their bases, and a part of the inner webs of the same equal to the white portion of their shafts white or whitish.

Lower parts: Paler sooty black as compared with the upper parts, and with a white area on the flanks, and some of the under tail coverts with white markings especially on their outer webs and tips.

Bill black.

Legs black.

Feet black, with a portion of the web between the toes pale orange-yellow.

The female is similar to the male in size and color.

Geographical Range.—*Breeding.* Kerguelen Island, Falkland Islands *General Distribution.* Atlantic and Indian Oceans, to the Antarctic Ice Barrier, north in the Atlantic Ocean to the coast of Labrador and the British Islands. Indian Ocean, from Mekran coast southward; the Australian Seas and New Zealand.

Wilson's Stormy Petrel was not collected by the Princeton Expeditions, and the description here given is based on an adult male, no. 8574, taken off the coast of Nantucket, Massachusetts, 3 August, 1881, by William E. D. Scott.

This Petrel so far as known breeds on the Islands of the South Atlantic Ocean during late January, February and early March. After the cares of the breeding season are completed, these birds migrate northward passing their winters in the regions indicated in their general geographical range.

"Nests under rocks, usually on pretty high land, laying a single white egg. There are no eggs in the collection; but one was found by Rev. Mr. Eaton, of the English party, on Thumb Mountain, some fifteen miles from the American station, December 8." (Natural History of Kerguelen Island, J. H. Kidder, M. D., Bull. no. 3, U. S. Nat. Mus. p. 16, 1876.)

"Northerly from Dungeness Spit." "During most of the 20th we were greatly off our course, beating in towards the land. On the 21st we noticed a stormy petrel (*Thalassidroma Wilsonii?*) for the first time, and on the afternoon of the following day a number of petrels of another species, brown above, and white beneath, with the exception of the throat, which was dark-coloured, were observed flying about astern. We remarked that they soared at a much greater elevation than even the Cape pigeons or Fulmars. We never noticed them light on the surface of the water, and their wings appeared proportionally much longer and narrower." (Cunn. Nat. Hist. Str. Magellan, 1871, p. 226.)

Genus GARRODIA Forbes.

	Type.
Garrodia, Forbes, P. Z. S. 1881, p. 735; id. Voy. Chall., Zool. IV. Pt. xi. p. 56 (1882); Salvin, Cat. Bds. Brit. Mus. XXV. p. 361 (1896); Sharpe, Hand-List Bds. I. p. 122 (1899)	*G. nereis.*

Geographical Range.—Southern Ocean: Falkland Islands, Kerguelen Island, New Zealand and Australian Coast.

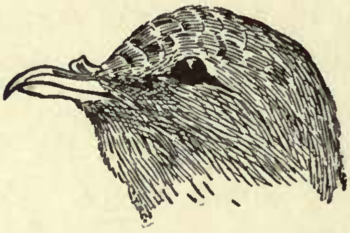
GARRODIA NEREIS (Gould).

Thalassidroma nereis, Gould, P. Z. S. 1840, p. 178; Gray, Gen. B. III. p. 648 (1844); Gould, P. Z. S. 1859, p. 98 (Falkland Islands); Scl. P. Z. S. 1860, p. 390 (Falkland Isl.); Abbott, Ibis, 1861, p. 164 (Falklands, March, picked up dead); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 248 (1888: Falkland Isl.); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 307, 332 (1891: Falklands).

Procellaria nereis, Scl. & Salv. Nomencl. Av. Neotr. p. 148 (1873).

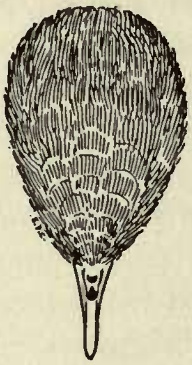
Garrodia nereis, Salvin, Cat. Bds. Brit. Mus. XXV. p. 361 (1896); Sharpe, Hand-List Bds. I. p. 122 (1899); Martens, Hamb. Magalh, Sammelr. p. 18 (1900: Falkland Islands); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 150 (1901).

FIG. 69.



Garrodia nereis. Profile of head. From material in the British Museum. Natural size.

FIG. 70.



Garrodia nereis. Head from above. From material in the British Museum. Natural size.

GENERAL DESCRIPTION.

Size. Adult.—Total length, about 6.7 inches.
Wing, 5.2 inches.
Bill, 0.65 inch.
Tarsus, 1.25 inch.

Tail, 2.7 inches.

Color. Adult Male.—General color above, greyish black; darkest anteriorly, lightest posteriorly. Below pure white except on the neck, the under tail coverts and the flanks.

Head: Dark greyish black.

Neck: Above and below dark greyish black.

Back: The same shade as the head but increasingly greyer, the feathers on the lower back and rump, edged with greyish-white. The upper tail-coverts are ashy, edged with whitish.

Wings: Black. The median coverts are ashy and edged with whitish.

Tail: Ashy grey, each feather broadly tipped with black forming a terminal band.

Under parts: Chest, neck and throat dark greyish black, which terminates abruptly in pure white on the breast. This white prevails on the rest of the under parts. The flanks and sides are shaded or streaked with grey.

Bill: Black. Iris brown.

Legs: Black.

Feet: Dusky.

The female is similar in size and color to the male.

Geographical Range.—Falkland Islands, Kerguelen Island and the Southern Ocean, New Zealand and Australian Coasts.

This petrel was not obtained by the Princeton Expeditions. The description is based on the material representing the species in the British Museum of Natural History.

"In this Society's Proceedings for the year 1840, the late Mr. Gould described a 'beautiful fairy-like' new species of Stormy Petrel from Bass's Straits, which he called *Thalassidroma nereis* (tom. cit. p. 178), under which name it is figured in the last volume of the 'Birds of Australia.'

"Dr. Elliott Coues, in his revision of the family Procellariidæ, treating of the species under the name *Procellaria nereis*, says: 'I have had the pleasure of examining Mr. Gould's types of this species from Bass's Straits, Australia, now in the collection of the Philadelphia Academy. It is a beautiful little species, quite unlike any other known Stormy Petrel. In form it comes nearer to *Procellaria pelagica* than to any other species; and it is *probably congeneric with it, though it differs somewhat*[1] in the proportion of the tarsus and toes, and very widely in its pattern of coloration. The proportions of the tibia and tarsus differ from those of *pelagica* in the greater comparative length of the former.'

"Amongst the Petrels mentioned at various times by the late Prof. Garrod as having been examined by him, a species several times occurs which is doubtfully named '*Procellaria* (or *Thalassidroma*) *fregata?*' The specimens dissected by him are now before me, and have been identified by Mr. Salvin as being really referable to the *Procellaria nereis* of Gould, an example of which, from the Falkland Islands, is now in the museum of Messrs. Salvin and Godman. A careful examination of the three spirit-specimens of this bird, as well as of the skin mentioned, have convinced me that this species is not referable to the true genus *Procellaria* as represented by *Procellaria pelagica*, and is in fact in no way related to that group of Petrels, but has its nearest allies in the flat-clawed genera *Oceanites*, *Fregetta*, and *Pelagodroma*.

"In his paper on the muscles of the thigh in Birds[2] the late Prof. Garrod divided the Nasutæ, or Petrels, into two groups, the 'Storm Petrels' and the Fulmaridæ, the former group differing from the latter in that they possess the accessory semitendinosus muscle (Y), but lack intestinal cæca. In the Fulmaridæ, on the other hand, the accessory semitendinosus muscle is absent, but cæca are present. The species of Storm Petrels on which this generalization was based are called, with doubt, '*Procellaria pelagica* and *P. fregata*,' the latter being the species now identified by Mr. Salvin as *P. nereis*. As regards the first named species, there can be little or no doubt that the bird really dissected by Prof. Garrod, and called by him '*Procellaria pelagica*,' was Wilson's Petrel (*Oceanites oceanicus*), as in this bird there are no cæca, at the same time that the accessory semitendinosus muscle is present. The true *Procellaria pelagica* (of which I have lately dissected two perfectly fresh examples) agrees with the Fulmaridæ, as defined by Prof. Garrod, in having cæca, but no accessory head to the semitendinosus; and *Cymochorea leucorrhoa* agrees in both these points with *Procellaria pelagica*.

"The so-called '*Procellaria nereis*' of Gould is therefore obviously not a true *Procellaria* at all; and this view is confirmed by other characters, such as the shape of its nostrils, the elongated tarsi, which are much longer than the mid toe and covered anteriorly with transversely arranged scutellæ, the very minute hallux, and the lamellar, concave form of the claws. It belongs, in fact, to the group of *Oceanites*, *Fregetta* and *Pelagodroma*, but is not exactly congeneric with any of them. I propose therefore to make it the type of a new genus, to be called *Garrodia*, in memory of my lamented friend A. H. Garrod, not only as a token of my personal esteem for and indebtedness to him, but also as some slight recognition of the thanks ornithologists generally owe him for the additions he made to our knowledge of the anatomy of birds.

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[1] "The italics are mine. W. A. F."

[2] P. Z. S. 1874, p. 122.

"The genus *Garrodia* may be shortly defined as follows:

"*Garrodia. Genus ex ordine Tubinarium* Oceanitæ *maxime affine, tarsis pro digitis longioribus et antice scutellatis, necnon margine sterni posteriore integro distinguendum.*

"Type *Procellaria nereis*, Gould.

"*Garrodia* is perhaps most closely allied to *Oceanites*, as already stated, but differs from that genus in having the tarso-metatarsi covered anteriorly with a series of transverse scutellæ instead of being 'entire,' in their slightly greater proportional length as compared with the third toe, in the even more minute hallux, and in the more flattened and lamellar form of the claws. The sternum too is posteriorly entire, whereas in *Oceanites oceanicus* it is slightly notched. The coloration of the two genera is also quite different. From *Fregetta*, *Garrodia* may be easily distinguished by the very different proportions and forms of the nails and feet in that genus, and from *Pelagodroma* by its much shorter feet and entire tail.

"These four genera—*Oceanites*, *Garrodia*, *Pelagodroma* and *Fregetta*—form a very well-marked family of the Tubinares, which may be called Oceanitidæ, as distinguished from the remainder of the group, or Fulmaridæ of Prof. Garrod. Anatomically, these four genera agree together, and differ from the Fulmaridæ (on nearly all the genera of which, including *Diomedea* and *Puffinuria*, I have notes), in the two important characters already mentioned—the absence of cæca and the presence of the accessory semitendinosus muscle. Externally they may be at once recognized by their peculiar elongated tarsi, lamellar nails, and by never having more than 10 secondaries, *Procellaria* and *Puffinuria* having 13, and the remaining Fulmaridæ more (in *Diomedea*, according to Nitzsch, as many as 40). My family Oceanitidæ, in fact, corresponds to Bonaparte's section '*Unguibus depressis*' of his Procellarieæ, and to Coues's 'second group' of the similarly-named section in his 'Review' with the addition, in each case, of *Garrodia*, included by both authors in the restricted genus *Procellaria*." (W. A. Forbes, P. Z. S. 1881, pp. 735–737.)

"Nests under tufts of grass, or other low herbage, near the sea. Sometimes it digs a small burrow; oftener the eggs are found simply covered by overhanging grass-stems, in low land. The egg is single, compact in structure, smooth, and very fragile, ellipsoidal in form, and white, excepting at the larger end, which is marked by a collection of small reddish spots, interspersed with a few specks of very dark brown. If we are correct in our impression that the markings about the butts of these eggs are not adventitions, we have here an exception to the general rule that the Procellariidæ lay white eggs. In size, shape, and coloration, the egg recalls some of the least-spotted examples of that of the common Meadow Lark (*Sturnella magna*). By aid of the lens are to be seen a few pore-like punctations, widely scattered.

"We have no information concerning the young of this species, none having been hatched at the time of breaking up the American Station (January 11).

(Natural History of Kerguelen Island, J. H. Kidder, M.D., Bull. no. 3, U. S. Nat. Mus., p. 16, 1876.)

Genus FREGETTA Bonaparte.

	Type.
Fregetta, Bonap. Compt. Rend. XLI. p. 1113 (1855); id. Consp. Av. ii. p. 197 (1856); (nec *Fregata*, Briss, Cuv, etc.); Coues, Proc. Acad. Sci. Philad. 1864, p. 85; Forbes, Voy. Chall. Zool. IV. Pt. XI. p. 56, etc. (1882); Coues, Auk, XIV. 1897, p. 315; Auk (Ninth Sup.), XVI. 1899, p. 102; Sharpe, Hand-List Bds. I. p. 122 (1899).	*F. melanogaster.*
Cymodroma, Ridgw. in Baird, Brewer & Ridgw. Water Birds N. Am. ii. p. 418 (1884); id. Man. N. Am. Birds, p. 71 (1887); id. 2d ed. p. 71, pl. xv. fig. 3 (1896); Salvin, Cat. Bds. Brit. Mus. XXV. p. 364 (1896).	*F. melanogaster.*

Geographical Range.—Southern Oceans. North of the Equator in Tropical waters.

FREGETTA MELANOGASTER (Gould).

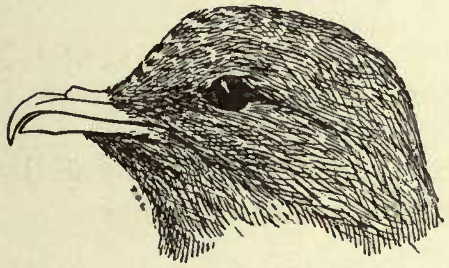
Thalassidroma melanogaster, Gould, Ann. & Mag. N. H. XIII. p. 367 (1844).

Fregetta melanogastra, Scl. & Salv. Voy. Chall. II. Birds, App. p. 151 (1881: Falkland Islands, eggs); Carbajal, La Patagonia, Part II. p. 277 (1900).

Cymodroma melanogaster, Salvin, Cat. Bds. Brit. Mus. XXV. p. 364 (1896); Martens, Hamb. Magalh. Sammelr. Vög. p. 18 (1900).

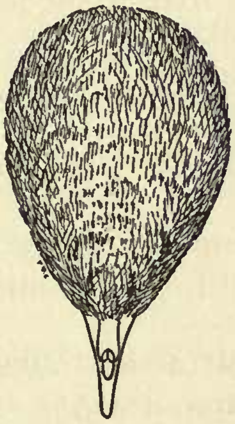
Fregetta melanogaster, Coues, Auk, XIV. p. 315 (1897); Sharpe, Hand-List, Bds. I. p. 122 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 151 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 141 (1902).

FIG. 71.



Fregetta melanogaster. Profile of head. From material in the British Museum. Natural size.

FIG. 72.



Fregetta melanogaster. Head from above. From material in the British Museum. Natural size.

GENERAL DESCRIPTION.

Size. Adult Male.—Total length, about 8.0 inches.
Wing, 7.0 inches.
Tail, 3.2 inches.
Bill, 0.9 inch.

Color. Adult Male.—General color above, sooty black. Below partly black, and largely white.

Head: Sooty black.

Neck: Sooty black except the throat, which has the bases of the feathers white, more or less concealed, and varying in amount. In some individuals it appears as an immaculate area and in the others the white is almost obscured by the sooty black ends of each feather.

Back: Sooty black; the bases of the upper tail feathers are white more or less concealed.

Wings: Sooty black, but not so intense as on the head. The greater wing coverts are noticeably paler and the margin of the wing is indistinctly edged with a paler sooty shade.

Tail: Black, not so dark in shade as the head. The base of the lateral tail feathers is white.

Lower parts: Throat as described, rest of lower neck sooty black. The breast *and middle of the abdomen sooty.* The bases of the feathers of the sides and flanks and of the under tail-coverts pure white more or less obscured by the sooty larvinual portion of each feather

Bill black.

Legs black.

Feet dusky.

The female is similar to the male in size and color.

Geographical Range.—The Southern Ocean north to the Bay of Bengal, and in the Atlantic north (casually?) to the Tropic of Cancer.

Breeds at the Falkland Islands. (Sclater & Salvin, Voy. Chall. II. Birds, App. p. 151).

This petrel was not observed or collected by the Princeton Expeditions. The description is based on the series of this species in the Collections of the British Museum of Natural History.

FREGETTA GRALLARIA (Vieillot).

Procellaria grallaria, Vieill, N. Dict. d'Hist. Nat. XXV. p. 418 (1817); Scl. & Salv. Nomencl. Av. Neotr. p. 148 (1873).

Thalassidroma segethi, Phil. & Landb. Av. Chil. p. 46 (1868: Valdivia).

Oceanites grallaria, Sharpe, P. Z. S. 1881, p. 11 (St. Ambrose Island, South Pacific, July 20).

Cymodroma grallaria, Baird, Brewer & Ridgway, Water Birds, N. Amer. II. p. 419 (1884); Salvin, Cat. Bds. Brit. Mus. XXV. p. 366 (1896).

Fregetta grallaria, Sharpe, Hand-List Bds. I. p. 122 (1899); Carbajal, La Patagonia, Part II. p. 277 (1900).

GENERAL DESCRIPTION.

Size. *Adult male.*—Total length about 7.4 inches.

Wing, 6.5 inches.

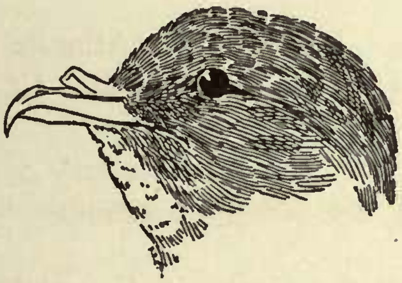
Tail, 2.9 inches.

Bill, 0.8 inch.

Tarsus, 1.4 inch.

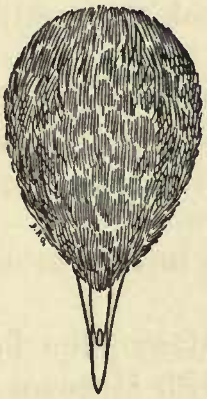
Color. *Adult male.*—General color above greyish sooty black, greyer on back and wings with a white area on the rump. Whole lower parts from the breast backward white, the neck and throat sooty like the upper parts.

FIG. 73.



Fregetta grallaria. Profile of head. From material in the British Museum. Natural size.

FIG. 74.



Fregetta grallaria. Head from above. From material in the British Museum. Natural size.

Head: Greyish sooty black.

Neck: Greyish sooty black above and below.

Back: More definitely grey than the head. Each feather having a whitish edging. Rump pure white. Upper tail coverts white.

Wing: Black with a greyish tinge. The scapulars greyer and each feather edged with white or whitish.

Tail: Middle pair of rectrices sooty black, the remaining ones with white bases.

Lower parts: Upper breast and neck black of a greyish sooty cast. Sides, flanks, lower breast and *abdomen* pure white. Lower tail coverts nearly as long as the rectrices and greyish sooty black in color.

Inner under wing coverts white.

Bill black.

Legs black.

Feet dusky.

Iris brown.

The adult female resembles the adult male in size and color.

"No. 65. Female: off St. Ambrose, July 20, 1879. Bill and feet black. Mr. Salvin[1] has already suggested the identity of the Chilian birds described by Mr. Elliot and Drs. Philippi and Landbeck with *O. leucogastra* of Gould (*P. grallaria* V.); and from the specimen now sent by Dr. Coppinger, I must say that I can see no difference at all." (Sharpe, Pro. Zool. Soc. 1881, p. 11.)

Geographical range.—Southern Oceans. North in the Atlantic (casually?) to the Florida Coast. (St. Marks, Gulf Coast, Florida. Cf. Lawrence, Ann. Lyc. New York, V. p. 117 (1851).

I am unable to discover any record of the breeding grounds of this petrel.

The description here given is based on the series of *F. grallaria* in the British Museum of Natural History. This species was not obtained or observed by the Princeton Expeditions to Patagonia.

Dr. Coppinger says in speaking of this Petrel, *Fregetta grallaria*, under the head of *Thalassidroma leucogaster*, "In the course of this cruise we were followed by great numbers of petrels, among which were the giant petrel (*Ossifraga gigantea*), the Cape pigeon (*Daption capensis*), and two species of *Thalassidroma* (I think *T. leucogaster* and *T. Wilsoni*). I noticed on this, as on several subsequent occasions, that the little storm petrel is in the habit of kicking the water with one leg when it is skimming the surface in searching for its food. This movement is usually seen most clearly when the sea presents a slightly undulating surface; and when the bird strikes the water in performing a slight curve in its flight, one can see that it is invariably the *outer* leg that is used. The object of this manœuvre seems to be to give the body sufficient upward impulse to prevent the wings from becoming wetted in rising from near the surface. I have often observed the Atlantic storm petrels steady themselves on the water with both legs together, but have never seen them perform this one-legged 'kick,' like their congeners of the Pacific. There are contradictory statements in natural history works as to whether petrels do or do not follow ships during the night time. Those who adopt the negative view of the question maintain that the birds rest on the waves during the night and pick up the ship next morning by following her wake. For a long time I was in doubt as to which was the correct view to take, although I had often on dark nights, when sitting on the taffrail of the ship, fancied I had heard the chirp of the small petrels. At length I became provoked that after having spent so many years at sea I should still be in doubt about such a matter as this, so I began to make systematic observations, in which I was assisted by the officers of watches and quartermasters, who were also interested in the matter. The result is that I am now quite certain that the storm petrel and Cape pigeon *do* follow the ship by night as well as by day, and that, moreover, the night is the best time for catching them. Every night, for a time, I used to tow a long light thread from the stern of the ship; it was about sixty yards long, and fitted at the end with an anchor-shaped piece of bottle wire, which just skimmed along the surface of the water and yet allowed the thread to float freely in the air. I found this device a great improvement on the old-fashioned method of using several unarmed threads, and in this way I caught at night-time, and even on the darkest nights, both storm petrels and Cape pigeons; the latter, however, usually breaking my thread and escaping. If I sat down quietly and held the line lightly between my finger and thumb, I would feel every now and then a vibration as a bird collided with it. On moonlight nights, moreover, one could always, by watching carefully, see the big Cape pigeons flitting about the stern of the ship." (Copp., Cruise "Alert," pp. 87–88.)

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[1] Scl. & Salv. in Voy. Chall., Zool. II. pt. VIII. p. 141 (1881).

Family Puffinidæ.

Salvin, Cat. Bds. Brit. Mus. XXV. p. 368 (1896); Sharpe, Hand-List Bds., I. p. 123 (1899).

Subfamily Puffinæ.

Salvin, t. c. p. 368; Sharpe, t. c. p. 123.

Genus PUFFINUS Brisson.

Type.

Puffinus, Brisson, Orn. VI. p. 131 (1760); Coues, Proc. Acad. Sci. Philad. 1864, p. 127; id. op. cit. 1866, p. 192; Ridgw. Man. N. Am. Birds, p. 58 (1887); Salvin, Cat. Bds. Brit. Mus. XXV. p. 368 (1896); Sharpe, Hand-List Bds. I. p. 123 (1899) . . . . *P. puffinus.*

Nectris, Kuhl, Beitr. p. 144 (1820); Coues, Proc. Acad. Sci. Philad. 1864, p. 123.

Thyellas, Gloger, in Froriep's Notizen, XVI. p. 279 (1827); Salv. Ibis, 1888, p. 353.

Thiellus, Gray, List Gen. Birds, p. 78 (1840); Bp. Consp. Av. ii. p. 200 (1856); Coues, Proc. Acad. Sci. Philad. 1864, p. 122 (= *Thyellas*). . . . . *P. gravis.*

Cymotomus, Macgill. Man. Brit. Birds, p. 13 (1842). . . *P. anglorum.*

Ardenna, Reichenb. Natürl. Syst. Vög. p. IV. (1852).

Thyellodroma, Stejn. Proc. U. S. Nat. Mus. XI. p. 93 (1888), *P. sphenurus.*

Zalias, Heine, in Heine & Reichenow, Nomencl. Mus. Hein. p. 362 (1890) (= *Thiellus*).

Geographical Range. — The Seas of the entire world.

Puffinus gravis (O'Reilly).

Procellaria gravis, O'Reilly, Voy. to Greenland, etc., p. 140, pl. xii. fig. 1 (1818).

Puffinus major, Temm. Man. d'Orn. IV. p. 507 (1840); Gray, List Bds. Brit. Mus. Part III. p. 158 (1844); id. Gen. Bds. III. p. 647 (1844);

Scl. & Salv. Nomencl. Av. Neotr. p. 149 (1873); Baird, Brewer & Ridgw. Water Birds N. Amer. II. p. 380 (1884); A. O. U. Check-List N. Am. Birds, p. 100 (1886); 2 ed. p. 31 (1895).

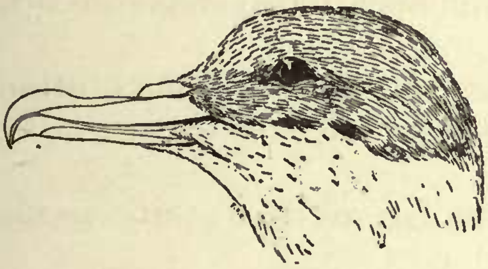
Puffinus gravis, Salvin, Cat. Bds. Brit. Mus. XXV, p. 373 (1896: Falkland Is.); Sharpe, Hand-List Bds. I. p. 123 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 18 (1900: Falkland Is.); A. O. U. Check-List 2 ed. (1895) 8th Supplement from Auk, XIV. p. 124 (1897).

GENERAL DESCRIPTION.

Size. *Adult male.*—Total length, about 19 inches.
Wing, 12.7 inches.
Tail, central rectrices, 4.65 inches; lateral rectrices, 3.75 inches.
Tarsus, 2.3 inches.

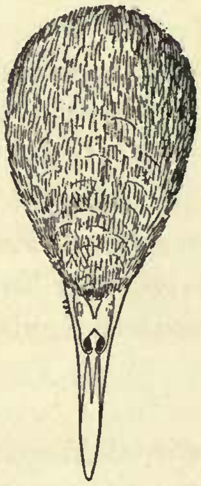
Color. *Adult male.*—(P. U. O. C. no. 8576. Twenty miles at sea, off Cape Cod, Massachusetts, 16 August, 1881. William E. D. Scott). General color above smoky greyish brown, below white with smoky greyish on middle of abdomen, and on the flanks and lower tail coverts.

FIG. 75.



Puffinus gravis. Profile of head. From material in the British Museum. ½ natural size.

FIG. 76.



Puffinus gravis. Head from above. From material in the British Museum. ½ natural size.

Head: Crown and sides deep smoky brown. Region in front of eye more or less mottled smoky brown and whitish.

Neck: Nape and upper neck smoky brown with a marked greyish tinge and much lighter (approaching white) in shade than the crown and occiput. Below and on sides white.

Back: Greyish smoky brown, each feather broadly margined with a lighter shade, often approaching white. Longest upper tail coverts mostly white.

Wing: The greater coverts like back; the shoulders darker, but similarly margined with lighter shade. Primary quills dark umber brown on their exposed surfaces, becoming white on the under webs, both webs and the shafts white at their bases.

Tail: Dark umber brown, the central rectrices nearly an inch longer than the outer ones. The intermediate feathers graded to form a rounded tail when spread.

Lower parts white, except on the middle of the abdomen, where the white is more or less obscured by smoky grey. Flanks smoky grey with lighter edging to the feathers. Lower tail coverts smoky grey with mottling and broad tipping of whitish. Some of the feathers on the sides under the wings are mottled with dark greyish smoke color.

Bill: Dark brown color, paler on the lower mandible.

Tarsus: Outer surface dark umber brown, inner surface yellowish flesh color.

Feet and webs pale yellowish flesh color darkest above, lightest below. The exterior toe umber brown like the outer surface of the tarsus.

Iris: Dark hazel brown.

The female is similar to the male in color but averages a little smaller in size.

Geographical Range.—Atlantic Ocean. From the Faroe Islands and Greenland on the north, to the Cape of Good Hope, the Falkland Islands and Cape Horn.

There appear to be no definite records of the breeding range of *P. gravis.*

This bird was not obtained or observed by the Princeton Expeditions to Patagonia. The description is based on an apparently adult male, cited above, compared with twenty six (26) other individuals all taken about twenty miles off the coast of Cape Cod, Massachusetts, nos. 8577 to 8602 P. U. O. Coll. August 1881 (William E. D. Scott, collector).

" So far as I can ascertain, there is no authentic account of the breeding-habits of this Shearwater; and the eggs which do duty in the cabinets of collectors as belonging to it are almost always those of *Puffinus kuhli.*" (H. E. Dresser, Bds. Europe, VIII. p. 531, 1877.)

PUFFINUS GRISEUS (Gmelin).

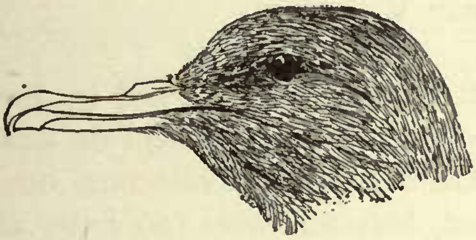
Grey Petrel, Lath. Gen. Syn. III. pt. 2. p. 399 (1785).

Procellaria griseus, Gm. Syst. Nat. I. p. 564 (1788).

Nectris amaurosoma, Phil. & Landb. Cat. Av. Chil., p. 47 (1868: Coast of Chile, common); Scl. & Salv. Ibis, 1870, p. 500 (Coquimbo, Aug.); iid. Nomencl. Av. Neotr. p. 149 (1873: Chile).

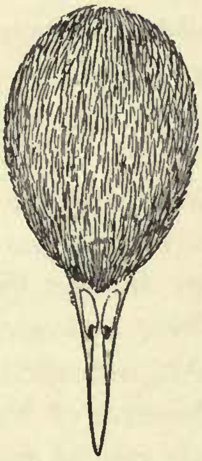
Puffinus griseus, Salvin, Cat. Bds. Brit. Mus. XXV. p. 386 (1896: Straits of Magellan); Lane, Ibis, 1897, p. 312 (Corral); Sharpe, Hand-List Bds. I. p. 124 (1899: Straits of Magellan); Martens, Hamb. Magalh. Sammelr. Vög. p. 18 (1900: Straits of Magellan); Nicoll. Ibis, 1904, p. 51 (Valparaiso, abundant).

FIG. 77.



Puffinus griseus. Profile of head. From material in the British Museum. ½ natural size.

FIG. 78.



Puffinus griseus. Head from above. From material in the British Museum. ½ natural size.

GENERAL DESRIPTION.

Size. Adult Male.—Total length, about 18 inches.

Wing, 12 inches.

Tail, central rectrices, 3.5 inches; lateral rectrices, 2.7 inches.

Bill, 2.1 inches.

Tarsus, 2.4 inches.

Color. Adult Male.—General color, deep sooty brown, darkest on upper parts, wings and tail are of a general lighter shade below.

Head: Entirely deep sooty brown.

Neck: Deep sooty brown above, somewhat lighter below.

Back: Sooty brown, rather lighter than the head, and each feather indistinctly edged with paler brown. Lower back deeper sooty brown.

Wings: Like the back; the quills sooty black.

Tail: Deep sooty brown.

Lower parts: Sooty brown paler than the prevailing shade above and greyer especially on the throat. Under wing coverts greyish white with dark shafts.

Bill: Horn color, often lighter at the tip.

Legs brown.

Feet brown.

Iris dark hazel.

The sexes are similar in size and color.

Geographical Range.—Atlantic and Pacific Oceans. South to Australia and to the Straits of Magellan. Known to breed in the Chatham group of Islands. (Travers, Trans. New Zeal. Inst. V. p. 220).

The Grey or Sooty Shearwater was not secured or observed by the Princeton Expeditions to Patagonia. The description is based on four individuals in the Princeton University Ornithological Collection nos. 8604 to 8607 inclusive, taken off Cape Cod, Massachusetts (20 miles at sea), 16 August, 1881; supplemented by the series of these birds in the British Museum of Natural History.

The only record respecting the nidification of this bird I have found (except Mr. Buller's statement that its egg is "white, stained with reddish brown, and measures 3.25 inches in length by 2 inches in breadth") is contained in the following notes by Mr. Travers, who writes (Trans. N. Zeal. Inst. v. p. 220), that it is "common all around the coasts of the Chatham group. It burrows a horizontal hole, from three to four feet deep, and turning slightly to the right or left, in peaty ground. At the extremity of this hole it forms a rude nest composed of twigs and dead leaves. Only one egg is laid; and the male bird assists in the work of incubation. They are savage whilst on the nest, biting and scratching those who molest them. The young bird is singularly fat, and when taken from the hole disgorges a quantity of oily matter of most offensive smell. This, however, is esteemed a delicacy by the Maoris, who hold the young birds over their mouths, allowing the substance to drain into them. The old birds roost on shore, the noise they make during the whole night being absolutely frightful, resembling an exaggerated chorus of squalling children and love-making cats, in which the performers were numbered by thousands. From the manner in which this noise was intensified on each fresh arrival I could only conclude that the whole lot were squalling out their adventures during the day. When taken out of their holes they flutter about on the ground for some time, tumbling over stumps in a confused manner, but ultimately make for the sea." (H. E. Dresser, Bds. Europe, VIII. p. 525, 1877.)

Genus PRIOFINUS Hombron & Jacquinot.

	Type.
Priofinus, Hombr. & Jacq. Compt. Rend. xviii. p. 355 (1844); Jacq. & Puch. Voy. Pôle Sud. Zool. iii. p. 145, t. 32, figs. 9–14 (1853); Coues, Proc. Acad. Sci. Philad. 1866, p. 192; Salvin, Cat. Bds. Brit. Mus. XXV. p. 390 (1896); Sharpe, Hand-List Bds. I. p. 124 (1899).	*P. cinereus.*
Adamastor, Bp. Consp. Av. ii. p. 187 (1855); Coues, Proc. Acad. Sci. Philad. 1864, p. 119.	*P. cinereus.*

Geographical Range.—The Southern Oceans.

PRIOFINUS CINEREUS (Gmelin).

Cinereus Fulmar, Lath. Gen. Syn. III. pt. 2, p. 405 (1785).

Procellaria cineria, Gm. Syst. Nat. I. p. 563 (1788).

Puffinus cinereus, Gould, Voy. Beagle, Birds, p. 137 (1841: Tierra del Fuego: Chiloe: mouth of Plata: Port Famine); Hartl. Naum. 1853, p. 222 (Chile); Phil. & Landb. Cat. Av. Chil. p. 46 (1868);

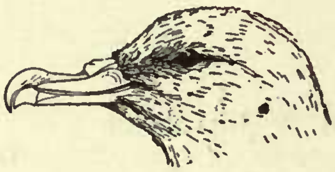
Burm. Ann. Mus. Nac. Buenos Aires, III. Part X. p. 248 (1888: Coast of Patagonia and Falkland Islands).

Procellaria hæsitata, Forst. Descr. Anim. p. 208 (1844).

Priofinus cinereus, Jacq. & Pucher, Voy. Pôle Sud. Zool. III. p. 145 (1853); Salvin, Cat. Bds. Brit. Mus. XXV. p. 390 (1896: Off Cape Horn, May); Sharpe, Hand-List Bds. I. p. 124 (1899); Carbajal, La Patagonia, Part II. p. 277 (1900); Martens, Hamb. Magalh. Sammelr. Vög. P. 18 (1900); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 142 (1902).

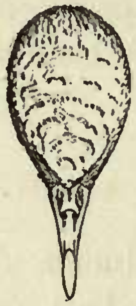
Adamastor cinereus, Scl. & Salv. Voy. Chall. II. Birds, p. 142 (1881: South Pacific).

FIG. 79.



Priofinus cinereus. Profile of head. From material in the British Museum. ⅓ natural size.

FIG. 80.



Priofinus cinereus. Head from above. From material in the British Museum. ⅓ natural size.

GENERAL DESCRIPTION.

Size. *Adult Male.*—Total length, about 19 inches.

Wing, 13 inches.

Tail, central rectrices, 4.4 inches; lateral rectrices, 3.5 inches.

Bill, 2.4 inches.

Tarsus, 2.4 inches.

Color. *Adult Male.*—Upper parts uniform cinereous; lower parts white.

Head: Crown deep cinereous, shading into grey on the sides of the head.

Neck: Above cinereous shading into paler grey on the sides, which shade into and blend with the white of lower neck and throat.

Back: Deep cinereous each feather having dark shafts; some of the feathers with indistinct lighter edging.

Rump concolor with back.

Wing: Deep cinereous, some of the scapulars and tertials with indistinct edging of a lighter shade. The quills are grey.

Tail: Like the back and rump in color and a little darker in tone.

Lower parts: Generally white and not clearly defined from, but shading gradually into, the grey of the upper parts. The under wing coverts are grey. Some of the feathers of the flanks and all the under tail coverts are deep cinereous.

Bill: "The nasal tubes, and culmen as far as the unguis are black; the unguis is paler yellow" (Coues).

Tarsus fleshy brown.

Feet: Fleshy brown, the webs yellowish.

Iris hazel brown.

The female is similar to the male in size and color.

Geographical Range. — The Southern Oceans. Kerguelen Island. Coasts of New Zealand, Cape Horn, Coasts of Chile and Patagonia, and the Falkland Islands.

The Cinereous Shearwater was not obtained or observed by the naturalists of the Princeton Expeditions to Patagonia It is however one of the most common birds off the coast of that region.

The description given above is based on material in the British Museum of Natural History.

"This bird frequents the seas on the whole coast of South America. I obtained specimens from Tierra del Fuego, Chiloe, the mouth of the Plata, and Callao Bay on the coast of Peru. It is likewise known to be common in the Northern Hemisphere; this species, therefore, has a most extensive range. It generally frequents the retired inland sounds in very large flocks; although, occasionally, two or three may be seen out at sea. I do not think I ever saw so many birds of any other sort together, as I once saw of these petrels, behind the Island of Chiloe. Hundreds of thousands flew in an irregular line, for several hours in one direction. When part of the flock settled on the water, the surface was blackened; and a cackling noise proceeded from them, as of human beings talking in the distance. At this time, the water was in parts coloured by clouds of small crustacea. The inhabitants of Chiloe told me that this petrel was very irregular in its movements; sometimes they appeared in vast numbers, and the next day not one was to be seen. At Port Famine, every morning and evening, a long band of these birds continued to fly with extreme rapidity, up and down the central parts of the channel, close to the surface of the water. Their flight was direct and vigorous, and they seldom glided with extended wings in graceful curves, like most other members of this family. Occasionally, they settled for a short time on the water; and they thus remained at rest during nearly the whole of the middle of the day. When flying backwards and forwards, at a distance from the shore, they evidently were fishing: but it was rare to see them seize prey. They are very wary, and seldom approach within gun-shot of a boat or of a ship; a disposition strikingly different from that of most of the other species. The stomach of one, killed near Port Famine, was distended with seven prawn-like crabs and a small fish. In another, killed off the Plata, there was the beak of a small cuttle-fish. I observed that these birds, when only slightly winged, were quite incapable of diving. There is no difference in the plumage of the sexes. The web between the inner toes, with the exception of the margin, is 'reddish-lilac-purple,' the rest being blackish. Legs and half of the lower mandible blackish purple. From accounts which I have received, the individuals of this species, which live in the Northern Hemisphere, appear to have exactly the same habits as those above described." (Darwin, in Voy. "Beagle," Gould, II. pp. 137–138.)

Genus THALASSŒCA Reichenbach.

	Type.
Thalassœca, Reichenb. Natürl. Syst. Vög. p. iv (1852); Salvin, Cat. Bds. Brit. Mus. XXV. p. 392 (1896); Sharpe, Hand-List Bds. I. p. 125 (1899).	*T. antarctica.*
Thalassoica, Coues, Proc. Acad. Sci. Philad. 1866, p. 29 (pt.) = (*Thalassœca*).	
Æipetes, Forbes, Voy. Chall. Zool. IV. pt. XI. p. 59 (1882)	*T. antarctica.*

Geographical Range.—The Antarctic Oceans.

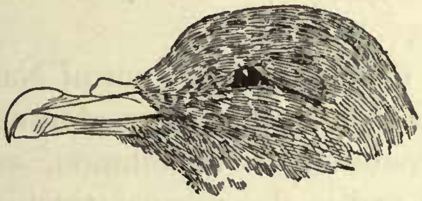
THALASSŒCA ANTARCTICA (Gmelin).

Antarctic Petrel. Lath. Gen. Syn. III. pt. 2, p. 400 (1785).

Procellaria antarctica, Gm. Syst. Nat. I. p. 565 (1788); Pelz. Reis, Novara, Vög. p. 147 (1865: Straits of Magellan).

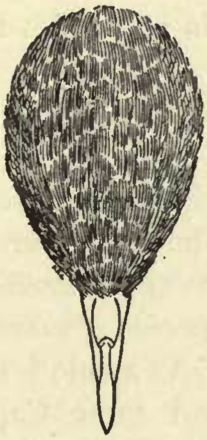
Thalassœca antarctica, Scl. & Salv. Nomencl. Av. Neotr. p. 149 (1873: Straits of Magellan); Salvin, Cat. Bds. Brit. Mus. XXV. p. 392 (1896: Cape Horn); Sharpe, Hand-List Bds. I. p. 125 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 19 (1900: Falkland Islands); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 143 (1902).

FIG. 81.



Thalassœca antarctica. Profile of head. From material in the British Museum. ½ natural size.

FIG. 82.



Thalassœca antarctica. Head from above. From material in the British Museum. ½ natural size.

GENERAL DESCRIPTION.

Size. *Adult male.*—Total length, about 17 inches.

Wing, 12 inches.

Tail, 4.2 inches.

Bill, 2.0 inches.

Tarsus, 1.7 inch.

Color. *Adult male.*—General color upper parts brown, with white areas; the lower parts white with brown areas.

Head: Brown, shading into paler on the sides.

Neck: Above brown, paler on the sides. Below, throat pale brown, with white bases to the feathers; lower neck white.

Back: Brown, except the upper tail coverts which are white, the central ones having brown tips.

Wing: Brown. The longer wing coverts white. Exposed portion of quills brown, the shafts and inner webs white nearly to the tips. Inner secondaries wholly white.

Tail: White, each feather tipped with brown.

Lower parts: White, except the throat which is pale brown, the feathers having white bases.

Under wing coverts and axillary feathers white.

Bill dusky brown color.

Tarsus yellowish brown.

Feet like the tarsi, the outer toe browner.

The female resembles the male in size and color.

Geographical Range.—The Antarctic Ocean.

The description is based on material in the British Museum of Natural History. The birds were not obtained by the Princeton Expeditions.

"*Thalassoica antarctica* is about as common, or uncommon, as the preceding species (*Fulmarus glacialoides*) and is also comparatively easy to capture. As a rule both these species keep farther from ships than the abundant and tame Cape Pigeon (*Daption capensis*). Of the species herein noted, *Thalassoica antarctica* appears to be the most exclusively southern in its range. Going southwards *Daption* made its appearance May 16, *Fulmarus* May 20, and *Thalassoica* not until June 21." (Lucas, Auk, IV. p. 4, 1887.)

Genus PRIOCELLA Hombron & Jacquinot.

Type.

Priocella, Hombr. & Jacq. Compt. Rend. XVIII. p. 357 (1844); Jacq. & Puch. Voy. Pôle Sud, Zool. iii. p. 148, t. 32, figs. 43–56 (1853); Salvin, Cat. Bds. Brit. Mus. XXV. p. 395 (1896); Sharpe, Hand-List Bds., I. p. 125 (1899). . . . . *P. glacialoides.*

Thalassoica, Coues, Proc. Acad. Sci. Philad. 1866, p. 29 (Pt.).

Geographical Range. — Antarctic and Southern Oceans; north on the West Coast of America to the Coast of Washington.

PRIOCELLA GLACIALOIDES (Smith).

Procellaria glacialoides, var. B. Gm. Syst. Nat. I. p. 562 (1788).

Procellaria glacialoides, A. Smith, Illust. of Zool. of S. Africa, Aves, pl. 51, (1840); Gould, Voy. Beagle, Birds, p. 140 (1841: Bay of St. Mathias); Gray, List B. Brit. Mus. Part III, p. 162 (1844: Straits of Magellan); id. Gen. B. III. p. 648 (1844); Hartl. Naum. 1853, p. 222 (Chile); Pelz. Reis. Novara, Vög. p. 146 (1865: Chile & Straits of Magellan).

Priocella garnoti, Homb. & Jacq. Voy. Pôle Sud, III. p. 148, pl. 32, figs. 43–56 (1844).

Procellaria garnoti, Gray, Gen. Bds. III. p. 648 (1844).

Thalassœca glacialoides, Bp. Consp. Av. II. p. 191 (1855); Scl. P. Z. S. 1867, p. 336 (Chile); Gigl. Faun. Vert. Oceano, p. 47 (1870); Scl. & Salv. Nomencl. Av. Neotr. p. 149 (1873); James, New List Chil. B. p. 13 (1892).

Procellaria smithi, Schl. Mus. Pays Bas, Procell. p. 22 (1863: Cape Horn: Coast of Chile).

Fulmarus glacialoides, Gray, Hand-List Bds. III. p. 105, no. 10877 (1871); Cunningh. Nat. Hist. Str. Magell. p. 223 (1871); Vincig. Boll. Soc. Geogr. Ital. (2) IX. p. 799 (1884).

Thalassœca tenuirostris, Sharpe, P. Z. S. 1881, p. 11 (Valparaiso, Aug.); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 162, 332 (1891).

Procellaria tenuirostris, Burm. (nec Temm.); An. Mus. Nac. Buenos Aires, III. Part X. p. 248 (1888: Coast of Central Patagonia).

Priocella glacialoides, Salvin, Cat. Bds. Brit. Mus. XXV. p. 393 (1896); Schalow, Zool. Jahb. Suppl. IV. p. 654 (1898: Cavanche, July); Sharpe, Hand-List Bds. I. p. 125 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 628 (1900; at sea, north of Rio Gallegos, April); Martens, Hamb. Magalh. Sammelr. Vög. p. 18 (1900: Cape Horn); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 145 (1902).

Thalassidea glacialoides, Carbajal, La Patagonia, Part II. p. 277 (1900).

GENERAL DESCRIPTION.

Size. Adult Male.—Total length, about 18 inches.

Wing, 12.5 to 13 inches.

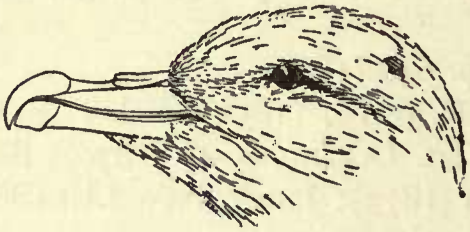
Tail, central rectrices, 5.1 inches; lateral rectrices, 4.15 inches.

Bill, 2.1 inches.

Tarsus, 1.8 inch.

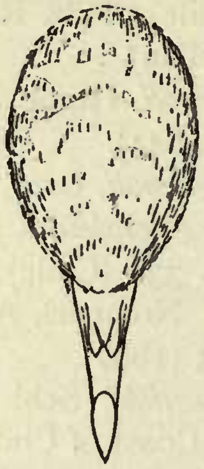
Color. Adult Male.—General color above clear pearl grey, below white. The pearl grey shading into the white without abrupt demarcation.

FIG. 83.



Priocella glacialoides. Profile of head. From material in the British Museum. ½ natural size.

FIG. 84.



Priocella glacialoides. Head from above. From material in the British Museum. ½ natural size.

Head: Top of head and crown pale pearl grey, lighter than on the back. Forehead white, grey of top of head shading into white on the sides of face and cheeks. A dusky spot in front of the eye.

Neck: Above pale pearl grey like the crown shading into white on the sides. Lower neck, throat and chin white.

Back: Uniform pearl grey, of a darker shade than on the crown and upper neck. Upper tail coverts like back.

Wing: Upper coverts, pearl grey. Primaries, exposed portion greyish black, the exposed portion of the shafts black: concealed portion yellowish white at the base. The inner webs are pearly white nearly to the tip of each feather. Secondaries, slaty black on their outer webs and white on their inner webs. Tertials, pearl grey like the back. Feathers of the edge of the wing greyish slate.

Tail: Pearl grey, like the back. Under parts, pure white, shaded on the sides and flanks with pale pearl grey.

Bill: Yellow, with the tip, the middle of the culmen, the nasal covers and bases of the maxillæ dusky brown or black.

Tarsi: Flesh color, darkest externally.

Feet: Flesh color, the outer toe darker in tone; webs yellowish flesh color.

"Male: Valparaiso, August 4. 1879. Legs gray, with blue stains; bill grey, with blue patches." (Sharpe, P. Z. S. 1881, p. 11.)

The sexes are alike in size and color.

Geographical Range.—Southern and Antarctic Oceans generally. The entire Pacific Coast of America north to the mouth of the Columbia River. Cape Horn. Cape of Good Hope.

This petrel, which is colored like many gulls, was not obtained by the Princeton Expeditions to Patagonia. As may be inferred from the geographical range given above, the birds have been recorded from the Straits of Magellan, and points off the Patagonian Coast. The material on which the description is based, is a large series in the British Museum of Natural History, representing the species from most points where it is known to occur.

"I saw this petrel on both sides of the Continent south of lat. 30°; but seldom more than two or three together. I am informed that it arrives in Georgia in September for the purpose of breeding, and that it lays its eggs in holes in the precipices overhanging the sea. On the approach of winter it is said to retire from that island. My specimen was caught in the Bay of St. Mathias (lat. 43° S.) by a line and bent pin, baited with a small piece of pork; the same means by which the Pintado (*Dapt. Capensis*) is so easily caught. It is a tame, sociable, and silent bird; and often settles on the water: when thus resting it might from a distance be mistaken, owing to the general colour of its plumage, for a gull. One often approached close to the stern of the Beagle, and mingled with the Pintados, the constant attendants on vessels traversing these southern seas." Darwin, Voy. "Beagle," Birds, p. 140).

Genus MAJAQUEUS Reichenbach.

Type.

Majaqueus, Reichenb. Natürl. Syst. Vög. p. iv (1852); Coues, Proc. Acad. Sci. Philad. 1864, p. 117; Salvin, Cat. Bds. Brit. Mus. XXV, p. 395 (1896); Sharpe, Hand-List Bds. I. p. 125 (1889).

Cymatobulus, Reichen. in Heine & Reichenow, Nomencl. Mus. Hein. p. 363 (1890). . . . . . . *M. æquinoctialis.*

Geographical Range.—Southern Oceans.

MAJAQUEUS ÆQUINOCTIALIS (Linnæus).

Great Black Peteril, Edwards, Nat. Hist. Bds. II. pl. 89 (1746).

Procellaria æquinoctialis, Linn. Syst. Nat. I. p. 132 (1758).

Majaqueus æquinoctialis, Phil. & Landb. Cat. Av. Chil. p. 47 (1868); Sharpe, P. Z. S. 1881, p. 12 (Valparaiso, Aug.); James, New List Chil. Bds. p. 13 (1892); Salvin, Cat. Bds. Brit. Mus. XXV. p. 395 (1896: Valparaiso: Coquimbo); Schalow, Zool. Jahrb. Suppl. IV. p. 654 (1898: Cavancha); Sharpe, Hand-List Bds. I. p. 125 (1899); Carbajal, La Patagonia, Part II. p. 277 (1900); Martens, Hamb. Magalh. Sammelr. Vög. p. 18 (1900); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 156 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 146 (1902).

Procellaria (*Majaqueus*) *æquinoctialis*, Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 161, 332 (1891: Ponsonby Bay; Coast of Chile; Straits of Magellan; Falkland Islands).

General description.

Size. Adult Male.—Total length, about 20 inches.

Wing, 15 inches.

Tail, central rectrices, 5.3 inches; lateral rectrices, 4.5 inches.

Bill, 2.6 inches.

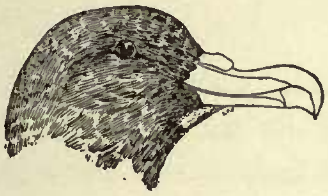
Tarsus, 2.6 inches.

Color. Adult Male.—General color throughout sooty black, with a white triangular area on the chin.

"Bill yellowish horn-colour with the spaces between the various portions of the sheath of both mandible and maxilla black. Feet black." (Salvin, t. c.).

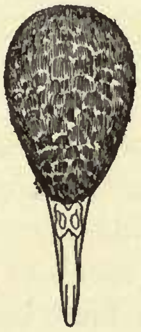
"Male: Valparaiso, August 1879. Eyes dark brown; bill grey and black; legs black." (Sharpe, P. Z. S. 1881, p. 12.)

FIG. 85.



Majaqueus equinoctialis. Profile of head. From material in the British Museum. ⅓ natural size.

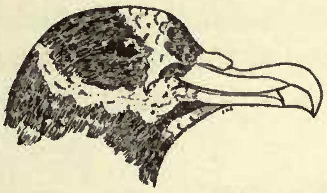
FIG. 86.



Majaqueus equinoctialis. Head from above. From material in the British Museum. ⅓ natural size.

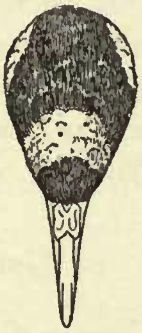
"The amount of white on the chin varies very much in different individuals. Some have an irregular white stripe running from near the base of the mandible under the eye almost to the nape, and a transverse band across the forehead in front of the eye. Upon such specimens Gould founded his *M. conspicellatus*, a form recognized by Dr. Coues as distinct, but apparently connected with the typical form by every degree of variation." (Salvin, Cat. Bds. Brit. Mus. XXV. p. 396 (1896)).

FIG. 87.



Majaqueus equinoctialis. Profile of head. From material in the British Museum. ⅓ natural size.

FIG. 88.



Majaqueus equinoctialis. Head from above. From material in the British Museum. ⅓ natural size.

"The white spots on the throat and cheeks appear to vary much with age. In the perfectly adult bird the triangular gular spot is alone left; that on the cheeks, which is connected with it in immature birds, having disappeared. Very young birds have the under parts almost wholly whitish, which afterward deepen into fuliginosus." (Coues, Proc. Acad. Sci. Philad. 1864, p. 118.)

Geographical Range.—Southern Oceans, north to about latitude 30° south.

This petrel was not obtained by the Princeton Expeditions to Patagonia. The material examined to form a basis for the description given is in the Collection of the Academy of Natural Sciences of Philadelphia, and a large series in the British Museum of Natural History.

The birds have been collected and observed in the Straits of Magellan and at points off the Patagonian Coast.

The Great Black Petrel breeds in numbers at Kerguelen Island in December, and the following observations of its habits at that season are of interest:

"Nests in very deep burrows in hill-sides, generally under a mound of herbage. Near the entrance to the burrow, there is always, so far as observed, a small pool of fresh water. Egg is single, regularly ovoid, and white, without shell-markings of any kind. It is generally, however, much soiled by secretions from the oviduct and dirt from the burrow. The shell is thin, homogeneous, and compact in structure, very smooth to the touch, but under the lens is seen to be marked by small pits and shallow linear depressions." (Natural History of Kerguelen Island, J. H. Kidder, M. D., Bull. no. 3, U. S. Nat. Mus. p. 13, 1876.)

Genus PAGODROMA Bonaparte.

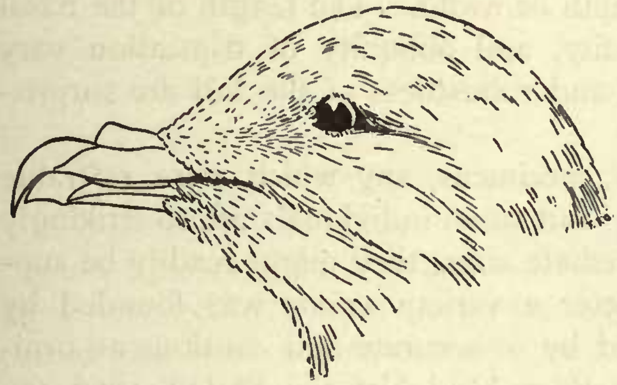
	Type.
Pagodroma, Bonap. Consp. Av. ii. p. 192 (1855); Coues, Proc. Acad. Sci. Philad. 1866, p. 159; Salvin, Cat. Bds. Brit. Mus. XXV. p. 419 (1896); Sharpe, Hand-List Bds. I. p. 127 (1899).	*P. nivea.*

Geographical Range.—Antarctic Seas.

PAGODROMA NIVEA (Gmelin).

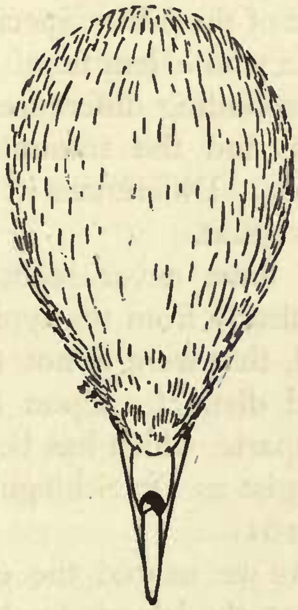
Snowy Petrel, Lath. Gen. Syn. III. pt. 2, p. 408 (1785).
Procellaria nivea, Gm. Syst. Nat. I. p. 408 (1788).
Pagodroma nivea, Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 307, 332 (1891); Salvin, Cat. Bds. Brit. Mus. XXV. p. 419 (1896: Falkland Islands); Sharpe, Hand-List Bds. I. p. 127 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 19 (1900: Falkland Islands); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 233 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 148, pl. X. fig. 1–3 (1902).

FIG. 89.



Pagodroma nivea. Profile of head. From material in the British Museum. Natural size.

FIG. 90.



Pagodroma nivea. Head from above. From material in the British Museum. Natural size.

GENERAL DESCRIPTION.

Size. Adult. — Total length, 14 to 16 inches.
Wing, 9.8 to 11.1 inches.
Tail, 4.3 to 5.1 inches.
Bill, 1.4 to 1.55 inch.
Tarsus, 1.3 to 1.5 inch.

Color. Adult. — Pure white throughout. Bill black. Tarsi and feet yellowish.

Geographical Range.—Antarctic Seas. Falkland Islands.

The Snowy Petrel was not obtained by the Princeton Expeditions to Patagonia. The material in the Collection of the Academy of Natural Sciences of Philadelphia, and also of the British Museum of Natural History forms the basis of the description.

The species presents a great scale of individual variation in size, that apparently does not correlate with sex or age. Dr. Coues writing of this feature says: "Independently of differences in absolute size of body, the species presents unending variations in size, and, to some degree, in shape of the bill. Specimens differ in this respect by as much as a fourth of the whole length of the bill, which may be quite unaccompanied by corresponding differences as to depth or width. The length of the nasal tubes, and the amount of turgidity, and obliquity of truncation vary greatly. Differences in the depth and robustness of the bill are surprisingly great.

"I have never seen, of many specimens, any which were referable specifically from the typical form. But some individuals are so strikingly small, that were it not for intermediate sizes, they might readily be supposed distinct. Upon this character a variety *minor* was founded by Bonaparte, which has been adopted by so accurate and cautious an ornithologist as Dr. Schlegel" (Coues, Proc. Acad. Nat. Sci. Philad. 1866, pp. 160–161).

"As we neared the edge of the pack ice a petrel which we had not seen at the islands we had left became common (*T. glacialoides*), and as soon as we reached the ice we fell in with the beautiful snow-white petrel (*Pagodroma nivea*), which is never to be found far from the antarctic ice. The bird flies very much like the Whale Bird (Prion); it settles on the water to feed; it remains on the wing late at night when the other birds have disappeared. I have seen birds flying about the ship as late as 11 o'clock at night, when it was quite dusk." Mosley's Notes, Nat. "Challenger," p. 253 (1879).

The eggs of this petrel were obtained in numbers at the Duke of York Island, Antarctic Ocean, by the "Southern Cross" Expedition.

Subfamily Fulmarinæ.

Salvin, Cat. Bds. Brit. Mus. XXV. p. 422 (1896); Sharpe, Hand-List Bds. I. p. 127 (1899).

Genus OSSIFRAGA Hombron & Jacquinot.

Type.

Ossifraga, Hombron & Jacquinot, Compt. Rend. xviii. p. 356 (1844); Jacq. & Puch. Voy. Pôle Sud. Zool. iii. p. 148, pl. 32, figs. 39–42 (1853); Bonap. Consp. Av. II. p. 186 (1855); Coues, Proc. Acad. Sci. Philad. 1866, p. 31; Forbes, Voy. Chall. Zool. IV. pt. XI. p. 42, etc. (1882); Salvin, Cat. Bds. Brit. Mus. XXV. p. 422 (1896); Sharpe, Hand-List Bds. I. p. 127 (1899) . . *O. gigantea.*

Geographical Range.—Southern Oceans, north to 30° south latitude.

Ossifraga gigantea (Gmelin).

Quebrantahuesos, Bougainv. Voy. Autour du monde, p. 63 (Tierra del Fuego: Falkland Islands).

Giant Petrel, Lath. Gen. Syn. III. pt. 2, p. 396, pl. 100 (1785: Staaten Island).

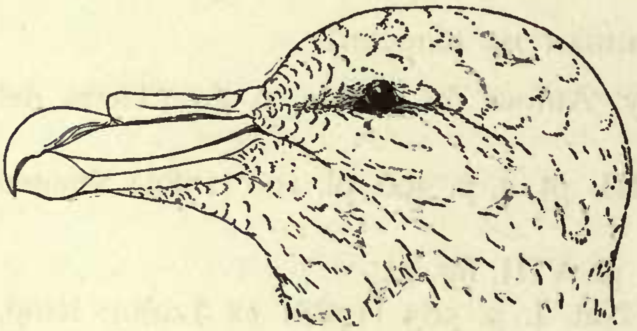
Mouton, Pernetty, Voy. I. p. 15, pl. VIII, fig. 3.

Procellaria gigantea, Gm. Syst. Nat. I. p. 563 (1788: ex Lath.); King, Zool. Journ. IV. p. 104 (1829: Straits of Magellan); Darw. Voy. Beagle, Birds, p. 139 (1841: Port San Antonio: Port St. Julian: Sea Lion Island: Mouth of Santa Cruz: Port Famine); Des Murs in Gay's Hist. Chil. Zool. I. p. 475 (1847); Abbott, Ibis, 1861, p. 164 (Falkland Islands); Phil. & Landb. Cat. Av. Chil. p. 46 (1868); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 248 (1888: Straits of Magellan).

Ossifraga gigantea, Jacq. & Puch. Voy. Pôle Sud. Zool. iii. p. 139 (1853); Scl. & Salv. Nomencl. Av. Neotr. p. 149 (1873: Falkland Islands); Sharpe, P. Z. S. 1881, p. 11 (Tom Bay, Straits of Magellan, April); Salv. P. Z. S. 1883, p. 431 (Coquimbo Bay, Nov.); Vincig. Boll. Soc. Geogr. Ital. (2) IX. p. 799 (1884); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 158, 332 (1891: Straits of Magellan: Patagonia:

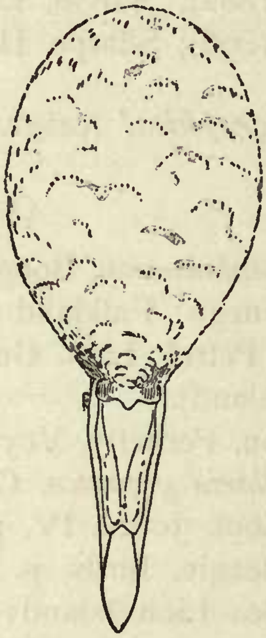
Falkland Islands); James, New List Chil. Bds. p. 13 (1892); Salvin, Cat. Bds. Brit. Mus. XXV. p. 422 (1896); Schalow, Zool. Jahrb. Suppl. IV. p. 654 (1898: Coquimbo, Nov.); Sharpe, Hand-List Bds. I. p. 127 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 628 (1900: Lat. 47° 19′ S.: Long. 64° 50′ W., Jan.: Port Cook, March); Carbajal, La Patagonia, Part II. p. 277 (1900); Martens, Hamb. Magalh. Sammelr. Vög. p. 19 (1900); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 158 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 153 (1902); Nicoll, Ibis, 1904, p. 52; Vallentin, Mem. Manchester Soc. 48, No. 23, p. 31 (1904: Falkland Islands).

FIG. 91.



Ossifraga gigantea. Profile of head. From material in the British Museum.. ⅓ natural size.

FIG. 92.



Ossifraga gigantea. Head from above. From material in the British Museum. ⅓ natural size.

GENERAL DESCRIPTION.

Size. Adult Male.—Total length, about 34 inches.

Wing, about 20 inches.

Spread of extended wings, tip to tip, about 84 inches.

Tail: Central rectrices, 7 inches; lateral rectrices, 5.8 inches.

Bill, 4.2 inches.

Tarsus, 3.6 inches.

Color. Adult Male.—Uniform dark chocolate brown throughout; the edges of all the feathers a little paler than the other portion.

Bill yellow.

Tarsi black.

Feet black.

"Male: Tom Bay, April 13, 1879. Bill light grey; iris dark brown; eyelids black; legs and feet dark grey." (Sharpe, P. Z. S. 1881, pp. 11–12.)

Young and immature birds are lighter brown, more or less mottled with dull white and white about the head; the edges and tips of many of the dark feathers are also dull white. The under parts vary from almost pure white to a condition of color approaching the adult. Nearly white individuals are occasionally met with.

Geographical Range.—Southern Oceans, north regularly to 30° South Latitude. Casually on the Pacific coast of North America to Oregon.

The Giant Fulmar was not obtained by the Princeton Expeditions to Patagonia. The material examined as a basis for the above description is in the Collections of the Academy of Natural Sciences of Philadelphia, and in the British Museum of Natural History.

"Lays a single egg on open, rather elevated ground, at some distance (half a mile) from the sea. There was no vestige of an artificial nest when the young were found, January 2. These were then nearly fledged, and quite as large and heavy as the adults, occupying natural hollows between mounds of *Azorella.* They are exceedingly filthy birds, ejecting the contents of their stomachs for two or three feet from their bodies, and seeming to have a limitless supply to draw upon. When disturbed, they are soon surrounded by a puddle of vomited matters, and are, in this condition, by no means pleasant birds to collect. Among the ejecta were noticed many Penguin feathers. In the same neighborhood was a young bird of an earlier brood, fully fledged, but not yet able to fly. These Petrels must therefore be among the earliest in laying. The down of the young bird is entirely grey in color, the head is partly naked, and the bill, tarsi, and feet are colored nearly as in the adult, but somewhat paler. The first fully formed feathers are similar to the adult plumage."

(Natural History of Kerguelen Island, J. H. Kidder, M.D., Bull. no. 3, U. S. Nat. Mus. p. 13, 1876.)

In his notes on the Falkland Islands Mr. R. Vallentin writes: "only a visitor, being invariably driven into the numerous fiords and harbours by stress of weather. I have frequently seen two or three of these birds flying in Stanley harbour when there was a strong wind blowing. Occasionally, one bird, bolder than its companions, would rest on the water near the slaughter-house, and eagerly devour the refuse. But even then the bird would not allow one to get within fifty yards of it, so I was never able to examine it closely. I have never heard of this species nesting on these islands."

Genus DAPTION Stephens.

	Type.
Daption, Steph. in Shaw's Gen. Zool. XIII. p. 239 (1826); Bp. Consp. Av. II. p. 188 (1855); Coues, Proc. Acad. Sci. Philad. 1866, p. 162; Forbes, Voy. Chall. Zool. iv. pt. XI. p. 42, &c (1882); Shufeldt, Pro. U. S. Nat. Mus. VII. p. 378 (1887); Salvin, Cat. Bds. Brit. Mus. XXV. p. 428, (1896); Sharpe, Hand-List Bds. I. p. 127 (1899)	*D. capensis.*

Geographical Range.—Southern Oceans.

Daption capensis (Linnæus).

Procellaria capensis, Linn. Syst. Nat. I. p. 132 (1758); King, Zool. Journ. IV. p. 104 (1829: Straits of Magellan); Pelz. Reis. Novara. Vög. p. 146 (1865: Valparaiso and Cape Horn).

Pintado Petrel, Forst. Voy. I. p. 489 (Falkland Islands); Lath. Gen. Syn. III. pt. 2, p. 403 (1785: ex Forst.).

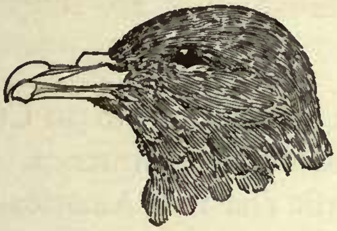
Le Petrel blanc et noir ou Damier, Pernet. Voy. II. p. 72.

Daption capensis, Hartl. Naum. 1853, p. 222 (Valdivia); Sharpe, P. Z. S. 1881, p. 12 (Tres Montes, May: St. Ambrose, July); Vincig. Boll. Soc. Geogr. Ital. (2) IX. p. 799 (1884); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 159, 332 (1891: Straits of Magellan, Oct.: Coast of Patagonia, Sept.); Salvin, Cat. Bds. Brit. Mus. XXV. p. 428 (1896); Sharpe, Hand-List Bds. I. p. 127 (1899); Carbajal, La Patagonia, Part II. p. 277 (1900); Martins, Hamb. Magalh. Sammelr. Vög. p. 19 (1900: Straits of Magellan); Oates, Cat. Bds. Eggs, Brit. Mus. I.

p. 159 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 156 (1902).

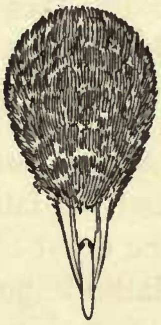
Daption capense, Cunningh. Nat. Hist. Str. Magell. p. 223 (1871); Salvad. Ann. Mus. Genov. (2) XX, p. 628 (1900: at sea north of Gallegos, April).

FIG. 93.



Daption capensis. Profile of head. From material in the British Museum. ½ natural size.

FIG. 94.



Daption capensis. Head from above. From material in the British Museum. ½ natural size.

GENERAL DESCRIPTION.

Size. *Adult Male.*—Total length, about 16 inches.

Wing, 10.5 inches.

Tail, 3.9 inches.

Bill, 1.7 inches.

Tarsus, 1.9 inches.

Color. *Adult Male.*—General color above; head and neck dusky black, back and wings white and black. Below white, with dusky neck and some dusky tips to the feathers on sides of breast.

Head: Dusky black throughout.

Neck: Dusky black above, and on the chin and throat below. Lower neck white, shading on the sides into the black of the upper neck.

Back: White, each feather broadly tipped with dusky black.

Wing: Greater coverts white, with broad dusky black tips, lesser coverts wholly dusky. The greater portion of the scapulars and secondaries white. The primaries outwardly dusky black, with the inner webs white nearly to the tips, and the bases of the outer webs of all the primaries but the first, white.

Tail: White, with a broad black apical margin to each feather.

Under parts white, except the upper throat and chin which are dusky black. The under tail coverts and some feathers on the sides of breast and neck, tipped with black.

Bill deep black.

Iris brown.

Legs and feet black.

"Male: off Tres Montes, May 10, 1879. Iris dark brown; bill and legs black; eyelids black; male: off St. Ambrose, July 20, 1879. Iris dark grey." (Sharpe, P. Z. S. 1881, p. 12.)

Geographical Range.—Southern Oceans in general, north to Ceylon, and regularly to latitude 5° south on the Pacific Coast of America. Casually to the coast of California. On the Atlantic coast of America north to about latitude 30° south.

The Cape Pigeon was not obtained by the Princeton Expeditions to Patagonia, though observed generally off the coast. The description is based on material in the Philadelphia Academy of Natural Sciences, the American Museum of Natural History in New York, and in the British Museum.

These petrels are known to breed on Tristan da Cunha (Moseley, Notes Nat. "Chall.," p. 134, 1879) and at Heard Island the same naturalist found the Cape Pigeons breeding in holes or burrows, in low basaltic cliffs, February, 1874. (Moseley, op. cit., p. 229.)

Darwin writes of the Cape Pigeon: "This petrel is extremely numerous over the whole southern ocean, south of the Tropic of Capricorn. On the coast, however, of Peru, I saw them in lat. from 16° to 17° S., which is considerably farther north than they are found on the shores of Brazil. Cook in sailing south in the meridian of New Zealand, first met this bird in lat. 43°30′. The Pintados slightly differ in some of their habits from the rest of their congeners, but, perhaps, approach nearest in this respect to *P. glacialoides.* They are very tame and sociable, and follow vessels navigating these seas for many days together; when the ship is becalmed or moving slowly, they often alight on the surface of the water, and in doing this they expand their tails like a fan. I think they always take their food when thus swimming." (Voy. H. M. S. "Beagle" Birds, II. Gould, p. 140; 1841.)

Northerly from Dungeness Spit. "Many Cape Pigeons (*Daption capense*) were observed flying about the vessel, and swimming in the water in our immediate vicinity, on the lookout for anything in the shape of food that might be thrown overboard; and these beautiful birds were our companions during the greater part of our passage. A specimen of a larger species of the same tribe, with ash-coloured and white plumage, the *Fulmarus glacialioides*, was taken on a line put out astern on this day; and I preserved the skin and the digestive organs, which latter I subsequently compared with those of specimens of the Cape pigeon, afterwards obtained, with the following results:—The entire length of the alimentary canal in *Fulmarus glacialioides* I found to be 85 inches, and that of the intestinal tract, taken by itself, 74.5 inches. The cæca measured three lines in length, and were situated two inches above the anus. The stomach was distinctly divided into a cardiac and a pyloric portion, separated by a short and narrow interval. Of these portions, the cardiac division possessed a comparatively feeble muscular coat, and was remarkably glandular; while the pyloric, of a somewhat flattened spheroidal form, was extremely muscular. The former I found distended with a firm mass of semi-digested ship-biscuit; while the latter contained the two mandibles of a small Cephalopod. In the Cape Pigeon, on the other hand, the length of the entire alimentary canal was 46 inches; that of the intestinal tract 34.5 inches, The œsophagus enlarged much more abruptly to form the cardiac portion of the stomach than was the case in the Fulmar; and the muscular coat of that portion was considerably thicker, so that the gastric glands were not visible through it. The pyloric division was much more feebly developed than in the Fulmar, but the diameter of the intestinal canal was considerably greater than in that species. The stomach of one of the specimens examined contained ship-biscuit, and that of another a piece of pork-rind, so large that it must have distended the œsophagus greatly in its passage downwards." (Cunn. Nat. Hist. Str. Magell. 1871, pp. 223–224.)

Genus HALOBÆNA Is. Geoffroy Saint-Hilaire.

	Type.
Halobæna, Is. Geoffr. St.-Hilaire, 1836 fide Bp. Consp. Av. ii. p. 193 (1856); Coues, Proc. Acad. Sci. Philad., 1866, pp. 162–163; Salvin, Cat. Bds. Brit. Mus. XXV. p. 431 (1896); Sharpe, Hand-List Bds. I. p. 127 (1899). . .	*H. cærulea.*

Zaprium, Coues, Bull. U. S. Nat. Mus. no. 2, p. 34 (1875). *H. cærulea.*

Geographical Range.—Southern Oceans, between 40° and 60° south Latitude.

1. HALOBÆNA CÆRULEA (Gmelin).

Blue Petrel, Förster, Voy. i. p. 91; Lath. Gen. Syn. iii. pt. 2, p. 415 (1785); id. Gen. Hist. Birds, X. p. 196 (1824).

Another Blue Peteril, Cook's Voy. i. p. 32.

Procellaria cærulea, Gm. Syst. Nat. i. p. 560 (1788); Lath. Ind. Orn. ii. p. 827 (1790); Viell. N. Dict. d'Hist. Nat. XXV. p. 421 (1817); id. Enc. Méth. p. 81 (1823); id. Gal. Ois. ii. p. 232 (1825); Kuhl, Beitr. p. 145 (1820); Gray, List Anseres Brit. Mus. p. 165 (1844); id. Gen. Birds, iii. p. 648 (1844); id. Ibis, 1862, p. 247; Gould, Birds Austr. VII. pl. 52 (1847); Peale, U. S. Expl. Exp. viii. p. 338 (1848); Layard, Birds S. Afr. p. 361 (1867); id. Ibis, 1876, p. 393, 1878, p. 264; Hutton, Cat. Birds N. Zeal. p. 47 (1871); Buller, Birds N. Zeal. p. 306 (1873); Finsch, J. f. Orn. 1870, p. 373, 1874, p. 208; Finsch & Hartl. Orn. Centralpol. p. 246 (1867).

Pachyptila cærulea, Illig. Prodr. p. 275 (1811); Steph. in Shaw's Gen. Zool. xiii. p. 252 (1826).

Procellaria forsteri, Smith, Ill. Zool. S. Afr. pl. 54 (1840).

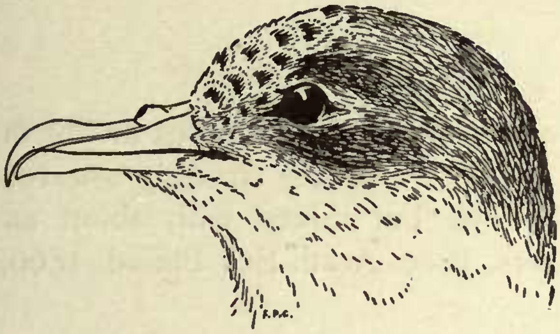
Procellaria similis, Forst. Descr. An. p. 59 (1844).

Halobæna cærulea, Bp. Compt. Rend. xlii. p. 768 (1856); id. Consp. Av. ii. p. 193 (1856); Coues, Proc. Ac. Sci. Philad. 1866, pp. 163, 171; Gould, Handb. Birds Austr. ii. p. 457 (1865); Coues & Kidder, Bull. U. S. Nat. Mus. no. 2, p. 34 (1875); Kidder, Bull. U. S. Nat. Mus. no. 3, p. 17 (1876); Moseley, Notes Nat. "Chall." p. 181 (1879); Sharpe, Phil. Trans. clxviii. extra volume p. 141 (1879); id. Layards' Birds S. Afr. p. 768 (1884); Buller, Birds N. Zeal. ed. 2, ii. p. 214 (1888); id. Tr. N. Zeal. Inst. XXV. p. 78 (1893); Salvin, Cat. B. Brit. Mus. XXV. p. 431 (1896); Sharpe, Hand-List Bds I. p. 127 (1899). Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 160 (1901).

Halobæna typica, Bp. Compt. Rend. xlii. p. 768 (1856); id. Consp. Av. ii. p. 194 (1856).

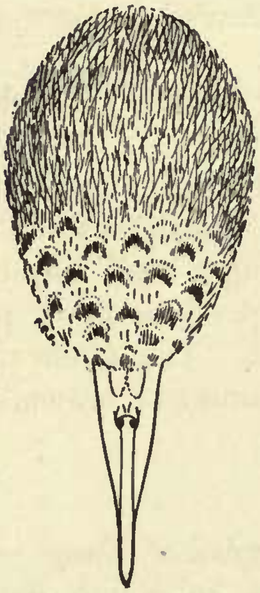
Procellaria velox, Solander? cf. Salvin in Rowley's Orn. Misc. i. p. 238.

Fig. 95.



Halobæna cærulea. Profile of head. From material in the British Museum. Natural size.

Fig. 96.



Halobæna cærulea. Head from above. From material in the British Museum. Natural size.

General description.

Size. *Adult.* — Total length, about 11 inches.

Wing, 8.5 inches.

Tail, 3.6 inches.

Bill, 1.4 inches.

Tarsus, 1.3 inches.

Color. *Adult.* — General color above, clear greyish blue, darkest on the crown, the nape, scapulars and lesser wing coverts; below white, except the sides of the breast which are ashy blue.

Head: Rather dark greyish blue. The middle feathers of the forehead are ashy blue broadly tipped with white, and the rest of the forehead white. There is a suggestion of a white superciliary streak not extending behind the eyes however. The cheeks and auriculars white.

Neck: Ashy blue above and pure white below.

Back: Clear pale ashy blue.

Wings: Darker ashy blue, the scapulars tipped with white; primaries, outer webs ashy blue, inner webs whitish.

Tail: Outer rectrix white, the two next ashy blue, with white bases to the inner webs, the three next ashy blue with *white tips.* This is widest on the two middle feathers, with a slightly darker subterminal ashy band. *Tail of twelve feathers, and square.* With no gradation of the lateral rectrices.

Lower surface pure white except a clouding of ashy blue on the sides of the breast.

Legs bluish.

Feet: Bluish toes and flesh-colored webs.

"Younger birds may be known by a less decidedly cinereous or bluish grey tinge of the upper parts; which tend more or less strongly towards brownish. The forehead is not pure white but mixed with about an equal amount of brownish ash." (Coues, Proc. Acad. Sci. Philad. 1866, p. 164.)

Geographical Range.—Southern Oceans. [Pacific Ocean near Cape Horn, lat. 50° South, long. 90° West, May 20, 1840 (J. Gould), adult skin, c., Coll. Brit. Mus.]

On account of the specimen above cited, this species has been included as one of the petrels properly of the Patagonian Coast. Its occurrence in this region however in view of our present knowledge must be regarded as rare, if not casual.

The Blue Petrel was not observed by any of the members of the Princeton Expeditions to Patagonia. The description is based on three representatives of the species in the Collections of the British Museum of Natural History.

"Nests in deep tortuous burrows in hill sides near the sea. Egg is single, ovoidal and dull white, without color-markings. In the specimens measured, there is, however, as shown by the figures, the usual range of variation in contour. They remind one, in size and shape, of the eggs of a bantam hen. Shell is thin, homogeneous, and compact in structure, presenting under the lens a finely granular external surface. First found October 23." (Natural History of Kerguelen, J. H. Kidder, M.D., Bull. No. 3, U. S. Nat. Mus. p. 17, 1876.)

Genus PRION Lacépède.

Type.

Prion, Lacépède, Mem. l'Inst. III. p. 513 (1801); Bp. Consp. Av. II. p. 192 (1856); Coues, Proc. Acad. Sci. Philad. 1866, p. 167; Forbes, Voy. "Chall.," Zool. IV. pt. XI. p. 42 (1882); Salvin, Cat. Bds. Brit. Mus. XXV. p. 432 (1896); Sharpe, Hand-List Bds. I. p. 128 (1899) . . *P. vittatus.*

Pachyptila, Illig. Prodr. p. 274 (1811) . . . . *P. vittatus.*

Priamphus, Rafinesque, Anal. p. 72 (1815), fide Bp.

Pseudoprion, Coues, Proc. Ac. Sci. Philad. 1866, p. 164 . . *P. desolatus.*

Geographical Range.—Southern Oceans.

PRION VITTATUS (Gmelin).

Broad-billed Petrel, Lath. Gen. Syn. III. pt. 2, p. 432 (1785).

Procellaria vittata Gm. Syst. Nat. I. p. 560 (1788).

Prion vittatus Darwin, Voy. Beagle, Birds, p. 141 (1841: Landfall Island, west coast of Tierra del Fuego, breeds); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: S. Patagonia); Salvin, Cat. B. Brit. Mus. XXV. p. 432 (1896); Sharpe, Hand-List Bds. I. p. 128 (1899); Carbajal, La Patagonia, Part II. p. 277 (1900); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 160 (1901).

GENERAL DESCRIPTION.

Size. Adult Male.—Total length, about 12 inches.

Wing: 7.6 inches.

Tail: Central rectrices, 3.8 inches; lateral rectrices, 3.5 inches.

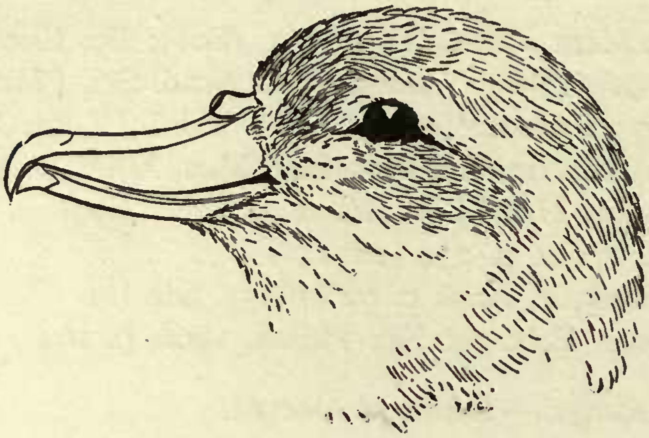
Bill, 1.5 inch.

Tarsus, 1.3 inch.

Color. Adult Male.—General color above, light greyish or plumbeous blue. Lower parts in general white, with suffusion of greyish blue on the sides of breast and flanks and mottling of the same color but a darker shade, on the under tail coverts.

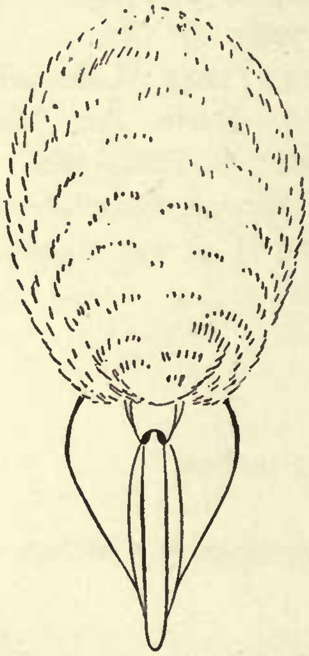
Head: Top of the head and sides of the face plumbeous blue. A white superciliary stripe. The region about the eye and below it darker in color, almost dusky.

FIG. 97.



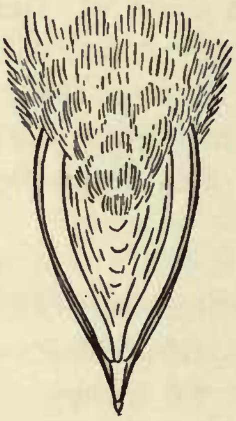
Prion vittatus. Profile of head. From material in the British Museum. Natural size.

FIG. 98.



Prion vittatus. Head from above. From material in the British Museum. Natural size.

FIG. 99.



Prion vittatus. Beak from beneath. From material in the British Museum. Natural size.

Neck: Above clear plumbeous blue shading into paler greyish blue on the sides. Beneath including throat and chin pure white.

Back: Clear plumbeous blue, somewhat paler in shade than on the crown and crossed by a dusky or black band.

Wings: General color plumbeous blue. The ends of the longer scapulars are black or dusky, with white tips; the smaller wing-coverts, the outer vanes on the first four primaries, the terminal portion of the tertials, black or plumbeous black. The inner vanes of the quills and the tips of the tertials pearly or greyish white.

Tail: Colored like the back. The tips of the central rectrices are broadly dusky or black; the lateral rectrices are gray with black shafts and with faint dusky tips.

Lower parts white, shaded on the sides of the breast and flanks with pearly grey. The under tail coverts mottled with a deeper shade of plumbeous blue.

Bill blue black.

Tarsi and toes light blue.

Eyes dark brown.

In shape the bill *is very wide*, with the edges of the maxilla distinctly convex. The *complete development* of the *serrated lamellæ*, makes them distinctly visible when the mouth is closed.

Geographical Range.—Southern Oceans; between 40° to 60° south latitude.

The Princeton Expeditions did not secure the Broad-billed Petrel, and the description here given is based on the large series of this bird in the Collections of the British Museum of Natural History.

This species of *Prion* has been long known to breed on the west coast of Tierra del Fuego, at Landfall Island (Darwin, Voy. Beagle, Birds, p. 141, 1841), and has also been taken at a number of different points off the coast of Patagonia.

"I did not procure a specimen of this bird, although I saw numbers on both sides of the Continent from about lat. 35° S. to Cape Horn. It is a wild solitary bird, appears always to be on the wing: flight extremely rapid. Mr. Stokes (Assistant Surveyor of the Beagle) informs me that they build in great numbers on Landfall Island, on the west coast of Tierra del Fuego. Their burrows are about a yard deep: they are excavated on the hill-sides, at a distance even of half a mile from the sea shore. If a person stamps on the ground over their nests, many fly out of the same hole. Mr. Stokes says the eggs are white, elongated, and of the size of those of a pigeon." (Voy. "Beagle," Gould, II. p. 141.)

Family PELECANOIDÆ.

Salvin, Cat. Bds. Brit. Mus. XXV. p. 437 (1896); Sharpe, Hand-List Bds. I. p. 128 (1899).

Genus PELECANOIDES Lacépède.

Type.

Pelecanoides, Lacépède, Mém. l'Inst. iii. p. 513 (1801); Coues, Proc. Acad. Sci. Philad. 1886, p. 188; Forbes, Voy. Chall. Zool. iv. pt. xi. p. 42, &c. (1882); Shufeldt, Proc. U. S. Nat. Mus. X. p. 380 (1887); Salvin, Cat. B. Brit. Mus. XXV. p. 437 (1896); Sharpe, Hand-List Bds., i, p. 128 (1899). . . . . *P. urinatrix.*

Haladroma, Illig. Prodr. p. 273 (1811); Bp. Consp. Av. ii. p. 206 (1856). . . . . *P. urinatrix.*

Puffinuria, Less. Voy. "Coquille," i. p. 729, pl. 46 (1826); id. Traité d'Orn. p. 614 (1831) . . . . *P. urinatrix.*

Geographical Range.—Southern Oceans.

PELECANOIDES URINATRIX (Gmelin).

Diving Petrel, Forst. Voy. I. p. 189; Lath. Gen. Syn. III. pt. 2, p. 413 (1785; ex Forst.).

Procellaria urinatrix, Gm. Syst. Nat. I. p. 560 (1788).

Pelecanoides berardi, Quoy. & Gaim. Voy. Uranie, p. 135, pl. 37 (1824: Darwin, Voy. Beagle, Birds, p. 138 (1841: Tierra del Fuego: coast of Patagonia as far north as the Chonos Archipelago: Port Famine); Gould, P. Z. S. 1859, p. 98 (Falkland Island); Scl. P. Z. S. 1860, p. 390 (loc. cit.): Abbott, Ibis, 1861, p. 164 (Berkeley Sound, Falkland Islands, breeding); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 248 (1888: Tierra del Fuego: Falkland Islands); Carbajal, La Patagonia, Part II. p. 277 (1900).

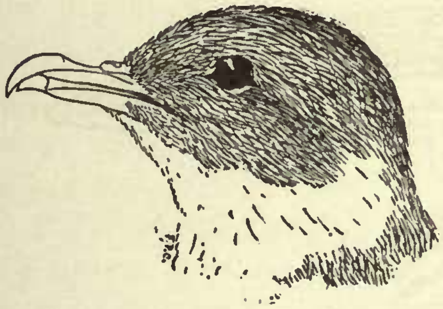
?*Halodroma garnoti* (nec Less.), Schl. Mus. Pays Bas, VI. Procell. p. 37 (1863: Straits Magellan).

Pelecanoides garnoti (nec Less.), Scl. & Salv. Ibis, 1870, p. 500 (Wood's Bay, April 1869); iid. P. Z. S. 1878, p. 739 (Cove Harbour, Messier Channel): Salv. Voy. Chall. II. Birds, p. 146 (1881: Cove Harbour, Messier Channel), p. 151 (Falkland Island, eggs).

Haladroma berardi, Scl. & Salv. Nomencl. Av. Neotr. p. 149 (1873: Falkland Islands).

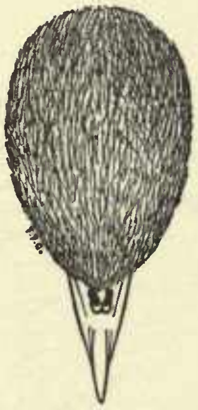
Pelecanoides urinatrix, Sharpe, P. Z. S. 1881, p. 12 (Antonio Isl. Trinidad Channel, Feb.: Cockle Cove, Oct.); Coppinger, Cruize of the 'Alert' p. 106 (1883); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 167, 332, (1891: Orange Bay: West Patagonia); Salvin, Cat. Bds. Brit. Mus. XXV, p. 437 (1896): Sharpe, Hand-List B. I. p. 128 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 20 (1900): (Falkland Islands); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 161 (1901); Nicoll, Ibis, 1904, p. 47 (Molineaux Sound: Straits of Magellan and Smythe's Channel, abundant.)

FIG. 100.



Pelecanoides urinatrix. Profile of head. From material in the British Museum. Natural size.

FIG. 101.



Pelecanoides urinatrix. Head from above. From material in the British Museum. Natural size.

GENERAL DESCRIPTION.

Size. *Adult Male.*—Total length, about 8 inches.

Wing, 4.7 inches.

Tail, 1.4 inch.

Bill, 0.9 inch.

Color. *Adult Male.*—General color above shining black, below pure white.

The only markings above diverging from black are on the scapulars. These are generally black, but the inner ones are grey on their inner webs and edged with white. Below the white is practically immaculate, there being a slight grey shading on the sides of the neck, and an almost imperceptible shading on the sides of the breast and flanks.

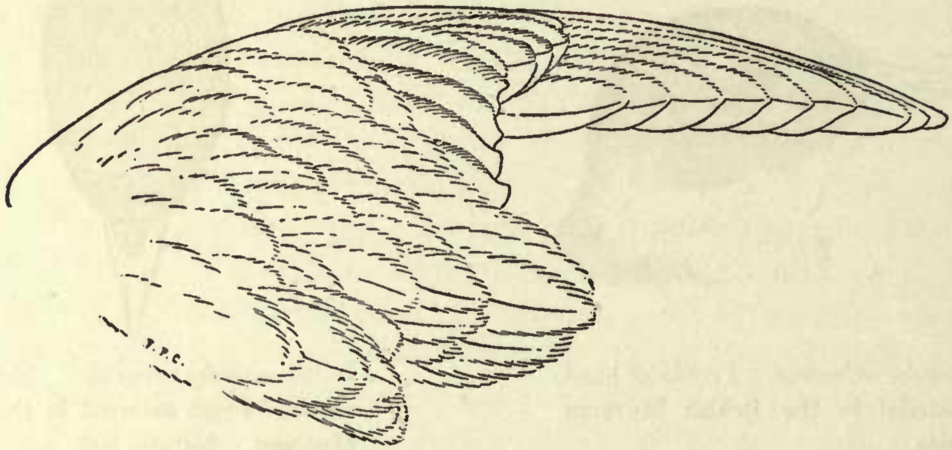
Bill black.

Tarsi and feet black.

Iris dark hazel.

Geographical Range.—Seas about Cape Horn. The Falkland Islands and Australia and New Zealand.

Fig. 102.



Pelecanoides urinatrix. From material in the British Museum. Wing. Natural size.

The description is based on the material in the British Museum of Natural History as the Diving Petrel was not procured by the Princeton Expeditions to Patagonia.

These petrels are so widely different in their general habits from those of other genera, that I quote from Charles Darwin (Voy. "Beagle," Birds, p. 138) whose comments make a vivid picture of the birds in life; under the heading of *Pelecanoides berardi* he writes:

"This bird is common in the deep and quiet creeks and inland seas of Tierra del Fuego, and on the west coast of Patagonia, as far north as the Chonos Archipelago. I never saw but one in the open sea, and that was between Tierra del Fuego and the Falkland Islands. This bird is a complete auk in its habits, although from its structure it must be classed with the Petrels. To the latter Mr. Gould informs me, its affinity is clearly shown by the form of its beak and nostrils, length of foot, and even by the general color of its plumage. To the auks it is related in the general form of its body, its short wings, shape of tail, and absence of hind-toe to the foot. When seen from a distance and undisturbed, it would almost certainly be mistaken, from its manner of swimming and frequent diving, for a grebe. When approached in a boat, it generally dives to a distance, and on coming to the surface, with the same movement takes flight; having flown some way, it drops like a stone on the water, as if struck dead, and instantaneously dives again. No one seeing this bird for the first time, thus diving like a grebe and flying in a straight line by the rapid movement of its short wings like an auk, would be willing to believe that it was a member of the family of Petrels, the greater number of which are eminently pelagic in their habits, do not dive, and whose flight is usually most graceful and continuous. I observed at Port Famine, that these birds, in the evening, sometimes flew in straight lines from one part of the sound to another; but during the day, they scarcely ever, I believe, take wing, if undisturbed. They are not very wild; if they had been so, from their habit of diving and flying, it would have been extremely difficult to have procured a specimen. The legs of this bird are of a 'flax-flower blue.'"

Also from Coppinger, Cruise of the "Alert," page 105, 1883:

"One night a small petrel flew on board, into one of the hoisted-up boats, where it was found by one of the seamen in the usual apparently helpless state. It is odd that some species of the family of petrels should find such difficulty about rising on the wing from a ship's deck. A freshly caught Cape pigeon, placed on its legs on the deck, seems to forget utterly that it possesses the power of flight, and does not even attempt to use its wings, but waddles about like an old farm-yard duck. The petrel above referred to was the little diver (*Pelecanoides urinatrix*), a bird not uncommon in the channels, but yet very difficult to obtain. During the previous season on the surveying ground, Sir George Nares, who was the first to notice it, reported one day, that he had seen one of his old arctic friends, the "little auk," which indeed in its habits it strongly resembles. It usually (at all events during the day time) sits on the surface of the water, and on the least sign of danger takes a long dive like a grebe, and on rising to the surface again flies away some few hundred yards, keeping all the while close to the surface. Its flight is like that of the grebe, but more feeble."

Also from Moseley's Notes by a Naturalist on the "Challenger," page 209 (1879).

"On two days in which excursions were made in the steam pinnace, the water was seen to be covered with these birds in flocks, extending over acres, which were black with them. The habits of the northern Little Auk are said to be closely similar to those of this bird; so close is the resemblance, that the whalers have transferred one of their familiar names for the Little Auk to the Diving Petrel. The diving petrels dive with extreme rapidity, and when frightened, get up and flutter along close to the water, and drop and dive again. It is a curious sight to see a whole flock thus taking flight. The birds make holes in the ground like the Prions, and lay an egg white with a few red specks at one end. They breed in enormous quantities on the islands in Royal Sound. They are readily attracted by a light, and some were caught on board through coming to the ship's lights."

"Lays one egg in a burrow in the hill-side, generally selecting the same locality as *Halobæna cærulea.* Burrow is straight, slanting slightly downward, and less deep than that of *Halobæna.* Egg is a regular ovoid, tending in some specimens to ellipsoidal. First found December 10. Shell is white, thin, brittle, compact, and homogeneous in structure. No color-markings." (Natural History of Kerguelen Island, J. H. Kidder, M.D., Bull. No. 3, U. S. Nat. Mus., p. 17, 1876.)

"Female: Antonio Islands, Trinidad Channel, February 17, 1879. Eyes black; bill black; legs slate colour. Stomach containing small Crustacea.

"Female: Cockle Cove, October 16, 1879. Bill black; iris dark brown; legs and feet slate-coloured.

"The following are the dimensions of the adult specimen:—total length 8.5 inches, culmen 0.75, wing 4.9, tail 1.7, tarsus 1. These measurements exceed those of the specimens already in the Museum from the Straits of Magellan, and appear to be intermediate between the ordinary *P. urinatrix* and the larger *P. garnoti,* which, after all, does not seem to be a very distinct species." (Sharpe, P. Z. S. 1881, p. 12.)

"Two males. Feb. 7th, Molineux Sound. Iris black; bill black; tarsi and toes blue-grey, with black line down back of tarsus, webs black. I first saw these curious little Petrels the day before we reached the Straits of Magellan. I watched them all the afternoon rising under our bows, flying for a short distance with a feeble fluttering flight, and then diving again suddenly into the water. They were abundant all through the Straits and Smythe's Channel, but were not easy to shoot, as they dived at the flash of a gun. The stomach of this species is very large and soft, and is apparently little more than an enlargement of the proventriculus, having no visible muscular system: those examined were filled with fishes." (M. J. Nicoll, Orn. Jour. Voy. round World, Ibis, Jan. 1904, p. 47.)

"On Jan. 27th, a few hours before we arrived at the entrance of the Magellan Straits, I saw a number of Diving Petrels (*Pelecanoides urinatrix*) and a Penguin. (M. J. Nicoll, Orn. Jour. Voy. round World, Ibis, Jan. 1904, p. 47.)

Family DIOMEDEIDÆ.

Salvin, Cat. Bds. Brit. Mus. XXV. p. 440 (1896); Sharpe, Hand-List Bds. I. p. 128 (1899).

Genus DIOMEDEA Linnæus.

	Type.
Diomedea, Linn. Syst. Nat. I. p. 214 (1766); Bp. Consp. Av. II. p. 184 (1855); Coues, Proc. Acad. Sci. Philad. 1866, p. 175; Forbes, Voy. "Chall." Zool. IV. pt. xi. p. 42, etc. (1882). Salvin, Cat. Bds. Brit. Mus. p. 440 (1896); Sharpe, Hand-List Bds. I. p. 128 (1899)	*D. exulans.*
Phœbastria, Reichenb. Natürl. Syst. Vög. p. v. (1852)	*D. albatrus.*
Thalassarche, Reichenb. Natürl. Syst. Vög. p. v. (1852)	*D. melanophrys.*

Geographical Range.—The Southern Oceans, and the North Pacific Ocean.

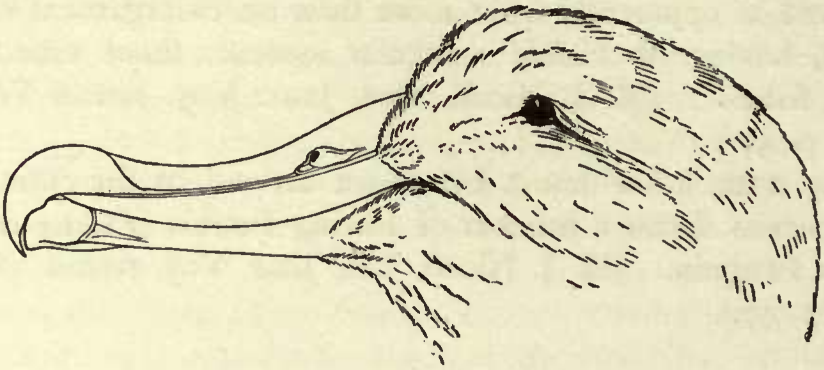
DIOMEDEA EXULANS Linnæus.

The Man of War Bird, Albin, Nat. Hist. B. III. p. 76, pl. 81 (1740).

Diomedea exulans, Linn. Syst. Nat. I. p. 132 (1758); King, Zool. Journ. IV. p. 195 (1829: Straits of Magellan); Phil. & Landb. Cat. Av. Chil.

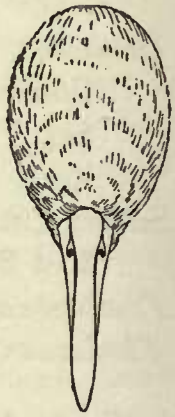
p. 47 (1868); Cunningh. Nat. Hist. Str. Magell. pp. 225, 329 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 148 (1873: Straits of Magellan); Vincig. Boll. Soc. Geogr. Ital. (2) IX. p. 799 (1884); Burm. An. Mus. Nac. Buenos Aires, III. Part X. p. 248 (1888: Seas of Patagonia); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 157, 332 (1891: Straits of Magellan: Patagonia); James, New List Chilian B. p. 13 (1892); Salvin, Cat. Bds. Brit. Mus. XXV. p. 441 (1896: Valparaiso); Sharpe, Hand-List Bds. I. p. 128 (1899); Carbajal, La Patagonia, Part II. p. 277 (1900); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 162 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 160 (1902); Vallentin, Mem. Manchester Soc. 48 No. 23 p. 30 (1904: Falkland Islands).

FIG. 103.



Diomedea exulans. Profile of head. From material in the British Museum. ⅓ natural size.

FIG. 104.



Diomedea exulans. Head from above. From material in the British Museum. ⅙ natural size.

GENERAL DESCRIPTION.

Size. Adult Male.—Total length, about 42 inches.

Wing (carpal joint to longest primary), 25.5 inches.

Extent (from tip to tip of longest primary), 125 to 130 inches.

Tail, 8.3 inches.

Bill (from gape), 7.0 inches.

Bill (from base of culmen), 6.7 inches.

Tarsus, 4.8 inches.

Color. Adult Male. — General color, white, with transverse dark lines on upper back and dark wings.

Head white.

Neck white.

Back from base of neck banded with narrow transverse wavy lines of dusky brown. Lower back white.

Wings: The scapulars are more strongly banded than the back, but the banding becomes indefinite and the general direction of the lines more parallel with the margins of the feathers. In the longest scapulars these lines merge into one another forming a slaty black tip to the feathers.

The wing proper is slaty black, the lesser coverts having a varying amount of white on their inner webs, increasing toward the edge of the wing.

The middle and greater coverts are narrowly edged with white.

The primaries are black on their exposed surfaces, the concealed portion of the shafts being yellowish white, and of the webs nearly pure white.

Tail: White. Most birds show some traces of dark markings on the webs of the rectrices.

Under parts white.

Bill yellowish horn color, orange at the base.

Legs flesh color.

Feet flesh color.

Immature birds, are dark brown above, palest on the neck and with a dark patch on the crown. The forehead, sides of the head and throat are white. The under surface is yellowish or brownish white, palest on the belly. The flanks are mottled with dusky, and the under tail coverts are dusky brown.

Geographical Range. — Southern Oceans. Seas about the Cape of Good Hope and Cape Horn. South Atlantic and South Pacific Oceans regularly north to about 30° south latitude. Casually in the Atlantic to the coast of Florida, and in the Pacific to the coast of Washington.

The description is based on material in the British Museum of Natural History.

The following biographical notes on the species may be quoted:

"We found this bird (the Goney of the whalers) nesting at Marion Island, Possession Island, and Kerguelen; and during our cruises in the Southern and Antarctic Oceans, it was an almost constant follower of the ship, except to the south of Heard Island, and in the immediate neighbourhood of the Antarctic ice. Its habitat seems especially to be the westerly winds of the Southern Ocean. The nests were at Kerguelen generally scattered about on the mossy slopes of the headlands, and were often three hundred feet above the sea.

"The nests are about one foot high, and two feet in diameter, and are built of earth, grass, *Azorella*, and decayed vegetable matter. The nests are widely separated from each other, that is to say, that I never saw two nests nearer to each other than fifty yards. We found one egg in each nest; I saw no young during our visit (January). The Whalers told us that they were very fond of the young Goneys, and ate great numbers of them; they were the best eating of any of the birds.

"They seem to have considerable difficulty in rising on the wing, from the places where they build their nests. I noticed several run for over two hundred yards with extended wings before they got fairly off. On many of our specimens there was a beautiful rose tinge on each side of the head.

"The heaviest specimen we weighed was 19 pounds and measured 11–6 from tip to tip of the wings." (O. Salvin, Rep. Bds. Voy. "Chall." Vol. II. pt. viii. p. 147, 1881.)

Cunningham in "Notes on the Natural History of the Straits of Magellan and West Coast of Patagonia, page 329 (1871)" writes:

"On the 26th the wind gradually fell, and there was a very heavy swell; but by the morning of the 27th the sea had gone down, and it was nearly dead calm throughout the day, and beautifully bright and warm. A most remarkable spectacle was furnished by the flocks of albatrosses (*Diomedea exulans*), which were peacefully resting on the calm surfacs of the water around the ship. Though the appearance of these birde when on the wing is very fine, they look singularly awkward when swimming, their great heavy heads, and large strong beaks, suggesting a child's first attempts at drawing water-fowl. At one time about twenty of them were close astern of us, growling hoarsely as they fought over the garbage thrown overboard from time to time. Several were taken on baited lines, and hauled in with considerable difficulty, as they struggled most vigorously, aiming violent blows at their captors with their powerful pinions Some disgorged what they had been feeding on, which consisted principally of large Cephalopods of the genus *Ommastrephes* or *Loligo.* I killed two specimens with the aid of chloroform, the skin of one of which I afterwards preserved, and several more were slaughtered by the ship's company for the sake of certain of their wing-bones (the radii) which are held in much esteem for pipe-stems. The largest captured measured ten feet nine inches in expanse of wing, while that which I preserved was somewhat smaller."

Moseley in "Notes by a Naturalist on the 'Challenger'" (1879) writes on page 134:

"Besides the birds I have mentioned the great Albatross (*D. exulans*) breeds at Tristan da Cunha, and on the top of Inaccessible Island. At Tristan da Cunha it nests actually within the crater of the terminal cone around the lake, 7,000 feet or more above the sea.

"The Mollymauk is common in Tristan da Cunha, and its eggs were brought off to us by the islanders for sale; they are not bad eating."

Our page 171 of the same book Moseley says: "The tracts of lower, nearly flat, land of Marion Island skirting the sea, and the lower hills and slopes along the shore, presented a curious spectacle as viewed from the ship as it steamed in towards a likely-looking sheltered spot for landing The whole place was everywhere dotted over with albatrosses, the large white albatross or Goney (*D. exulans*). The birds were scattered irregularly all over the green in pairs, looking in the distance not unlike geese on a common."

On page 180 he says: "The Skuas of course were close at hand, and swooped down at once on the body of a penguin that we skinned. Beyond the penguin rookery was a large tract of nearly flat land, very swampy, and covered with grass. On the drier parts were numerous troops of from twenty to thirty King Penguins, and in one place a smaller rookery, but as far as I saw without brooders.

"There was here a shallow freshwater lake, on which some young albatrosses were swimming. I ascended the slope inland towards the snow, going up the gentle slope of the modern looking lava flow already referred to. The ground was very boggy, and let one sink in sometimes almost up to the middle. There were numerous Great Albatross's nests scattered about, but they did not extend more than 100 feet above sea level, and hardly anywhere as high up as that."

On page 254 he says: "We seldom saw birds on the icebergs, but a flock of Cape pigeons was sometimes seen roosting on the top of one. The Great White Albatross (*Diomedea exulans*) accompanied the ship only about 500 miles south of Heard Island, stopping at more than 200 miles from the edge of the pack."

"Nests are on tall mounds, built up of grass to the height of two or more feet from the ground, and, being of different heights, seem to have been used again and added to year after year. The egg is single, elliptical in longitudinal section, and but slightly thicker at the large than at the small end. Only occasional specimens tend somewhat to the ovoid form. The shell is white, of loose granular texture and roughly mammillated surface. There are no markings beneath the superficial calcareous layer, and the spots which appear on this seem to be adventitious stains from the secretions of the oviduct, or accidental soiling after extrusion. Some specimens show a reddish stain upon the larger end, probably dried blood, since it readily washed off." (Natural History of Kerguelen Island, J. H. Kidder, M.D., Bull. No. 3, U. S. Nat. Mus. p. 11, 1876.)

Northerly from Dungeness Spit. "A magnificent albatross was soaring about at a short distance astern for some time in the afternoon, and was knocked over, but unfortunately not picked up. All those who have watched these splendid birds must have been struck with the marvellous nature of their flight, as they may often be seen sailing about for more than an hour at a time without any apparent movement of their long narrow wings, and will, I doubt not, agree with a well-known ornithological observer, Captain Hutton, who has remarked that he has never 'witnessed anything to equal the ease and grace of this bird, as he sweeps past, often within a few yards, every part of his body perfectly motionless, except the head and eye, which turn slowly, and seem to take notice of everything.' A good deal of discussion has arisen as to the method by which this sailing flight is maintained, and perhaps the question can hardly be considered as fairly settled. Dr. Pettigrew has observed, in his interesting and valuable memoir, *On the Mechanism of Flight*, that in sailing or gliding birds "the pinion acts as a long lever, and is wielded with precision and power, particularly at the shoulder."

And further, that a careful examination of the movements of skimming birds has led him to conclude:

"That by a judicious twisting or screw-like action of the wings at the shoulder, in which the pinions are alternately advanced towards and withdrawn from the head in a manner analogous to what occurs at the pelvis in skating without lifting the feet, birds of this order can not only maintain the motion, which they secure by a few energetic flappings, but, if necessary, actually increase it, and that without either bending the wing, or beating the air."

"Whether, however, this is a correct or sufficient explanation of what appears at first sight a very perplexing phenomenon, I do not venture to offer any opinion." (Cunn. Nat. Hist. Str. Magell. 1871, pp. 225–226.)

From the Strait to the Falkland Islands he writes: "We observed some very fine albatrosses, and a solitary penguin, which was progressing at a rapid rate by means of a series of flying leaps, presenting much the appearance of an animated beer-bottle." (Cunn. Nat. Hist. Str. Magell. 1871, p. 291.)

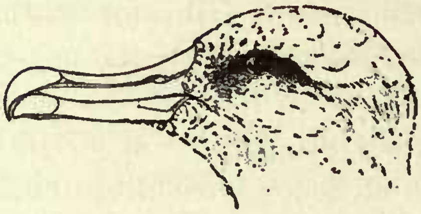
Mr. R. Vallentin in his notes on the Falkland Islands says: "Only a visitor to this archipelago. Their nearest nesting place is South Georgia; a desolate uninhabited island about 800 miles south-east of the Falkland Archipelago. I have in my collection three eggs of this species, which were given to me by the captain of a South Sea whaler, who put into Stanley on his return from those inhospitable regions. He found the nests of these birds fairly numerous along the high ground round Cumberland Bay, South Georgia."

DIOMEDEA MELANOPHRYS Temminck.

Diomedea melanophrys, Boie in Temm. Pl. Col. pl. 456 (1828); Gould, P. Z. S. 1859, p. 98 (Falkland Islands: egg); Abbott, Ibis, 1861, p. 165 (Falkland Is., breeding); Pelz. Reis. Novara, Vög. p. 148 (1865: Chile); Newt. Ibis, 1870, p. 503 (Falklands, eggs); Scl. & Salv. Nomencl. Av. Neotr. p. 148 (1873: Falkland Islands); Salv. Voy. Chall. II. Birds, p. 151 (1881: Falkland Islands, eggs); id. P. Z. S. 1883, p. 430 (Talcahuano Bay); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 304, 332 (1891: Falkland Isl.); Salvin, Cat. Bds. Brit. Mus. XXV. p. 447 (1896); Schalow, Zool. Jahrb. Suppl. IV. p. 655. (1898: Cavancha, July: Talcahuano, June); Sharpe, Hand-List Bds. I. p. 129 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 20 (1900: Falkland Islands); Oates, Cat. Bds. Eggs, Brit. Mus. I. p, 163 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 161 (1902); Nicoll, Ibis, 1901, p. 52 (Valparaiso).

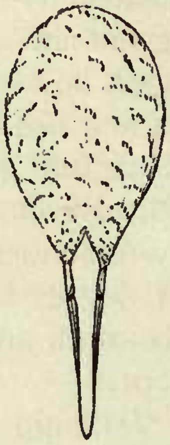
Thalassarche melanophrys, Carbajal, La Patagonia, Part II. p. 277 (1900).

FIG. 105.



Diomedea melanophrys. Profile of head. From material in the British Museum. ¼ natural size.

FIG. 106.



Diomedea melanophrys. Head from above. From material in the British Museum. ¼ natural size.

GENERAL DESCRIPTION.

Size. *Adult Male.*—Total length, about 30 inches.

Wing, 20 inches.

Tail, 7.3 inches.

Bill (from gape), 5.2 inches.

Tarsus, 3.3 inches.

Color. *Adult Male.*—General color above, head and neck white, back and wings plumbeous black, tail slaty; below white.

Head: White, with a slaty black transocular band.

Neck white.

Back: Plumbeous black, becoming more cinereous anteriorly, and merging gradually into the white of the neck.

Wings: Like the back in color.

Tail: Slaty black, each feather having a white shaft.

Lower parts: White, except the border of the under surface of the wing which is greyish black.

Bill: Yellowish horn color, the tip dusky.

"Male: Valparaiso, August 13, 1879. Bill grey, with dark tips; feet light grey; iris dark brown." (Sharpe, P. Z. S. 1881, p. 12.)

Legs: "Yellowish white" (Gould).

Feet: "Toes yellowish white, the interdigital membrane and the points washed with blue" (Gould).

The female is like the male in size and color.

Immature birds resemble the adults but the *lower surface* of the wing is *concolor with the upper and has no large white area.* The *D. gilliana* of Coues is probably based on an immature individual of this species. (See Salvin, Cat. Bds. Brit. Mus. XXV. p. 448 (1896).)

Geographical Range.—Southern Oceans, especially the South Pacific. Casual on the coast of California and straying to North Atlantic.

The description here given is based on material in the Philadelphia Academy of Natural Sciences and in the British Museum of Natural History. The birds were not obtained by the Princeton Expeditions to Patagonia.

These birds are known to breed on the Falkland Island, where eggs were obtained by the Naturalists of the Challenger.

On the habits of this species we quote from Dr. Coppinger, "Cruise of the Alert," p. 89 (1883), as follows:

"My experience of petrels and albatrosses is that whenever they are having a really good meal, they invariably sit down on the water. This is especially noticeable about noon, when mess garbage is thrown overboard, and in perfectly calm weather I have even seen a flock of storm petrels settle down on the surface as if meaning to rest themselves, and remain as still as ducks on a pond, basking in the sunshine. One day also in moderately fine weather I thought I saw a Cape pigeon dive. This surprised me so that I watched, and saw the manœuvre repeated again and again. Some refuse had been scattered overboard which scarcely floated, and this petrel, being desirous of possessing some morsels of food which were submerged, dived bodily down, apparently without the least inconvenience.

"Before quitting this subject, I shall say a few words on a somewhat hackneyed but still open question, viz.,—'the flight of the albatross.' I have had many opportunities of watching the yellow-billed species (*D. melanophrys*), and I have noticed that it sometimes uses its wings to raise or propel itself in such a manner that to a superficial observer it would then appear to be only soaring with wings stationary. It does not 'flap' them, but depresses them rapidly towards the breast, so that it seems as if the body were being raised at the expense of the wings, whereas, in reality, the entire bird is elevated. The movement does not resemble a flap, simply because the return of the wings to the horizontal position is accomplished by a comparatively slow movement. By resorting to this manœuvre occasionally, it is able to maintain a soaring flight for periods which, without its aid, might be considered extraordinarily long. Of course, when it wants to gain a fresh stock of buoyancy and momentum, it gives three or four flaps like any other bird."

Genus PHŒBETRIA Reichenbach.

	Type.
Phœbetria, Reichenb. Natürl. Syst. Vög. p. v. (1852); Coues, Proc. Acad. Sci. Philad. 1866, p. 186; Forbes, Voy. Chall. Zool. IV. pt. xi. p. 42 (1882); Ridgw. Man. No. Am. Bds. p. 53 (1887); Salvin, Cat. Bds. Brit. Mus. XXV. p. 453 (1896); Sharpe, Hand-List Bds. I. p. 129 (1899)	*P. fuliginosa.*
Diomedea (partim), Bp. Consp. Av. II. p. 184 (1855).	

Geographical Range.—Southern Oceans.

Phœbetria fuliginosa (Gmelin).

Sooty Albatross, Lath. Gen. Syn. III. pt. i. p. 309 (1785).

Diomedea fuliginosa, Gm. Syst. Nat. I. p. 568 (1788); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 303, 332 (1891: Falkland Islands: Tierra del Fuego).

Phœbetria fuliginosa, Salvin, Cat. B. Brit. Mus. XXV. p. 453 (1896); Sharpe, Hand-List B. I. p. 129 (1899); Carbajal, La Patagonia, Part II. p. 277 (1900): Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 164 (1901); Sharpe, Rep. Coll. Nat. Hist. "Southern Cross," Aves, p. 164 (1902).

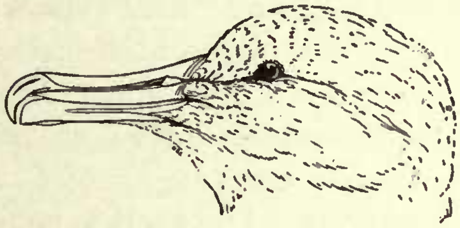
General description.

Size. Adult Male.—Total length, about 36 inches.

Wing, 19.5 inches.
Tail, central rectrices, 10.5 inches.
Tail, lateral rectrices, 7.0 inches.
Bill, 4.5 inches.
Tarsus, 3.0 inches.

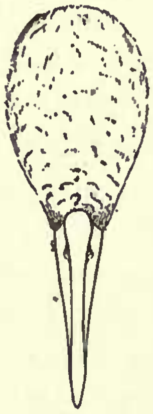
Color. Adult Male.—General color dark sooty fuliginous, a little lighter on the under surface and about the interscapular region. A white ring almost surrounds the eye, broken only in front. Bill black. Feet and legs dull flesh color. Sexes alike in size and color.

FIG. 107.



Phœbetria fuliginosa. Profile of head. From material in the British Museum. ¼ natural size.

FIG. 108.



Phœbetria fuliginosa. Head from above. From material in the British Museum. ¼ natural size.

Geographical Range.—Southern Oceans generally. Tierra del Fuego and the Falkland Islands. North in the Pacific Ocean regularly to 20° South Latitude, and casually to the coast of Oregon.

Dr. Coues and Mr. Salvin have both noticed individuals presumably referable to this species, which are much greyer in tone than the ordinary form. The *D. fuliginosa* var. *cornicoides* of Hutton appears to be based on such examples. I am inclined to believe inasmuch as the two phases are generally found together that this is a difference in color correlating with age, but the fact remains to be investigated and proved. The description here given is based on material in the Academy of Natural

Sciences and in the British Museum of Natural History. The Princeton Expeditions to Patagonia did not obtain specimens of the Sooty Albatrosses, but Mr. Hatcher states that he observed "black albatrosses" at sea not far distant from the eastern entrance to the Straits of Magellan.

Moseley in "Notes by A Naturalist on the 'Challenger,'" p. 180 (1879), writes:

"High up, at about 500 feet elevation, were some four or five Sooty Albatrosses (*Diomedea fuliginosa*, the Piew or Pio of sealers), soaring about the tops of the cliffs snd probably nesting there. This bird is continually to be seen about cliffs and higher mountain slopes, and seems never to nest low down like the Mollymauk and Goney."

"Nests on rocky shelves or in caves in the faces of lofty cliffs where the birds build a conical mound, seven or eight inches high, hollowed into a cup at the top and lined rudely with grass. Egg is single, broadly ovoidal, generally white, marked by a collection of specks about the larger end, somewhat like the adventitious stains on the eggs of *D. exulans*, but, as well as we can judge, less superficial. The shell is compact in structure, rather thin for its size, and superficially smooth to the touch. Under the lens, it is seen to be marked by minute pits and linear depressions, being thus decidedly different, both to the eye and to the touch, from those of *D. exulans*." (Natural History of Kerguelen Island, J. H. Kidder, M.D., Bull. No. 3, U. S. Nat. Mus. p. 12, 1876.)

Order LARIFORMES.

Sharpe, Classif. Bds. p. 72, 1891; Sharpe, Hand-List Bds. I. p. 133, 1899.

Family LARIDÆ.

Saunders, Cat. Bds. Brit. Mus. XXV. p. 3, 1896; Sharpe, Hand-List Bds. I. p. 133, 1899.

Subfamily *STERNINÆ*.

Saunders, t. c. p. 4; Sharpe, t. c. p. 133.

Genus GELOCHELIDON Brehm.

	Type.
Gelochelidon, Brehm, Vög. Deutschl. p. 774 (1831); Saunders, t. c. p. 25 (1896); Sharpe, t. c. p. 134 (1899)	*G. anglica.*
Laropis, Wagler, Isis, 1832, p. 1225	*G. anglica.*

Geographical Range. — Temperate Europe and Asia, Australia, North and South America on Atlantic coast from Brazil to Long Island, New York, and casually to Massachusetts. Atlantic and Pacific coasts of Mexico and Central America in winter; almost unknown on the Pacific coast at other seasons.

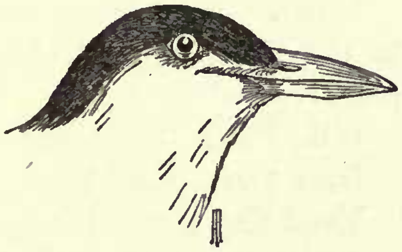
GELOCHELIDON ANGLICA (Montagu).

Sterna anglica, Mont. Orn. Dict. Suppl. fig. (1813; Sussex): Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: Coast of northern Patagonia); Holland, Ibis, 1890, p. 248 (Buenos Ayres); id. Ibis, 1892, p. 212 (Estancia Espartilla, rare, occasional throughout the year).

Viralva aranea, Darwin, Voy. "Beagle," Birds, p. 145 (1841; Bahia Blanca).

Gelochelidon anglica, Saunders, Cat. Bds. Brit. Mus. XXV. p. 25 (1896); Holland, Ibis, 1897, p. 169 (Estancia Sta. Elena); Sharpe, Hand-List Bds. I. p. 134 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 177 (1901).

FIG. 109.



Gelochelidon anglica. Profile of head. Adult breeding. From material in Princeton University Museum. About ½ natural size.

GENERAL DESCRIPTION.

Size (adult). — Total length, 13.7 to 15.5 inches.

Wing, 11.75 to 13 inches.

Tail, lateral rectrices, 5.3 to 6.0 inches.

Tail, depth of fork, 1.5 to 1.75 inches.

Culmen, 1.4 to 2.0 inches.

Tarsus, 1.35 to 1.45 inches.

Color. — Adult male. (Breeding, No. 4217, P. U. O. C. Cobb's Island, Virginia, 12 May, 1881, W. E. D. S.)

Head: Forehead, crown and nuchal crest velvety black. This cap extends down on the sides of the face to the lower edge of the eye, where it terminates abruptly. Forward of the eye the cap occupies rather more than half of the loral region.

Upper parts: Mantle and wings pearl grey. The primary quills dusky, on their exposed surface, heavily frosted with pearl grey, which becomes less obvious with the seasonal wear. On the first primary the white of the inner web extends to within about two and a half inches of the tip and cuts a distinct color wedge into the dusky portion of the web. This is also indicated on the second primary and less plainly on the third; it gradually becomes obsolete on the others. Shafts of the first six primaries ivory white. This character varies in individuals, some showing it only on the first four quills.

Tail: Pearly grey like the rest of the upper parts but lighter in shade; the outer feathers incline strongly to whitish.

Lower parts: Ivory white, which color extends on the sides of the face to the lower edge of the eyes and also occupies the lower third of the loral region.

Bill: Black (sometimes reddish at the base).

Iris: Dark hazel brown.

Tarsi and Feet: Black, often with a reddish tinge on the toes and webs.

Adult female, like the male in color but smaller and with a somewhat more slender bill.

Adults in Winter.—Like the breeding plumage, but lacking the black on the head. The region occupied by the cap is streaked rather obscurely with dusky; about the eye, extending from the loral region to the auriculars, this streaking is concentrated forming a more or less well defined patch. (Adult female P. U. O. C. 4248, Cobbs Island, Virginia, 8 September, 1881, W. E. D. S.)

An adult male, 4246 P. U. O. C., taken at the same locality on the same day has the cap half moulted, but still clearly defined, mottled with white.

Young birds of the year are similar in appearance to winter adults, but the streaking on the head is greyer and less well defined, the ground color of the head being white with a decided buff tint. The back at this time is pale buffy white and pearl intermixed. (Female of the year 4243, P. U. O. C. Cobbs Island, Virginia, 8 September, 1881, W. E. D. S.)

A half grown male bird (4197, P. U. O. C. Cobbs Island, Virginia, 29 August, 1881, W. E. D. S.), has many buffy fawn colored feathers, barred with dusky on the mantle, the tertials and some of the scapulars are for the most part pearl grey, but each feather is tipped broadly with buffy fawn color and marked in this area is a well defined dusky V, directed to the point of feather. The head is decidedly buffy on the crown, and each buff feather has a dusky streak giving the whole top of the head a striped effect. There is a dusky patch in the auricular region extending to the eye, a little below it but not in front. The bill is yellowish brown, and the feet and legs brown.

The primaries are darker than in adults, and have ivory white shafts.

Nestlings. — (No. 5393, ♀, P. U. O. C. Cobb's Island, Virginia, 26 July, 1881, W. E. D. S.) Greyish buff above, with two lines of dusky spots on the back, dusky spotting on the humeral portion of each wing and on the back of the neck and top and sides of the head down to the eyes. The lower parts and terminal point of the wing are ivory white. Bill, feet and legs yellowish flesh color. This bird was but a day or two old and still retains the "egg-tooth" at the extremity of the upper mandible.

Geographical Range. — Europe below 55° North Latitude in summer; temperate Asia and Southern China; Malay Islands to Australia; North Africa and Egypt; Eastern North America, regularly north to Capes of the Delaware, occasional on Long Island, New York, and casual on the Massachusetts coast. Very rare inland. On the South American Atlantic Coast south to Southern Argentina, and rare or not recorded on the Pacific except on the coast of Guatemala.

The Gull-billed Tern was not noticed by the Princeton Expeditions to Patagonia, and the descriptions are based chiefly on material in the Princeton University Museum taken at Cobbs Island, coast of Virginia, during 1881 by the writer. The birds were breeding at that point then in vast numbers and varied but little if at all in their nesting habits from the other species of Terns, *S. maxima*, *S. hirundo* and *S. forsteri*, that also bred on the same island in great hosts. Each kind of Tern had its own area for nesting and the several kinds of birds breeding did not affiliate.

Three eggs are frequently laid, but the usual number is two, and sometimes a solitary egg is hatched. Little or no attempt at building a nest is made; a hollow in the sand dunes with a sparse lining of seaweed is the greatest elaboration, but most birds are satisfied apparently with a shallow depression on the ground.

At Cobb's Island the first eggs were laid on the 15 June and the last nests with fresh eggs were recorded on the 15 July. In appearance the eggs are intermediate between those of characteristic Terns and those of typical Gulls.

Young birds were first noticed on June 30, and they were cared for by their parents till about six weeks old, even after they could fly well.

Charles Darwin observed these birds and collected at least one skin at Bahia Blanca, Southern Argentina, in January, 1837, and the birds have been taken in Northern Patagonia (Burmeister, t. c. ante).

Mr. Howard Saunders remarks that "American birds are often slightly smaller than European examples, and Australian specimens are inclined to be larger, but there are numerous exceptions" (Saunders, t. c. p. 29).

Genus STERNA Linnæus.

	TYPE.
Sterna, Linn. Syst. Nat. i, p. 227 (1766); Saunders, Cat. Bds. Brit. Mus., XXV, p. 40 (1896); Sharpe, Hand-List Bds. I. p. 134 (1899)	*S.* "*hirundo.*"
Thalasseus, Boie, Isis, 1822, p. 563 (pt.)	
Sternula, Boie, Isis, 1822, p. 563 (pt.)	*S. minuta.*
Actochelidon, Kaup, Natürl. Syst. p. 31 (1829)	*S. cantiaca.*
Thalassæa, Kaup, Natürl. Syst. p. 97 (1829)	*S. dougalli.*
Pelecanopus, Wagler, Isis, 1832, pp. 277, 1225	*S. bergii.*
Onychoprion, Wagler, Isis, 1832, p. 277	*S. fuliginosa.*
Planetis, Wagler, Isis, 1832, p. 1222	*S. fuliginosa.*
Haliplana, Wagler, Isis, 1832, p. 1224	*S. fuliginosa.*
Hydrocecropis, Boie, Isis, 1844, p. 179 (pt.)	
Thalassipora, Boie, teste Rüpp. Syst. Uebers. p. 140 (1845)	*S. fuliginosa.*
Melanosterna, Blyth, J. A. S. Beng. XV, p. 373 (1846)	*S. anæstheta.*

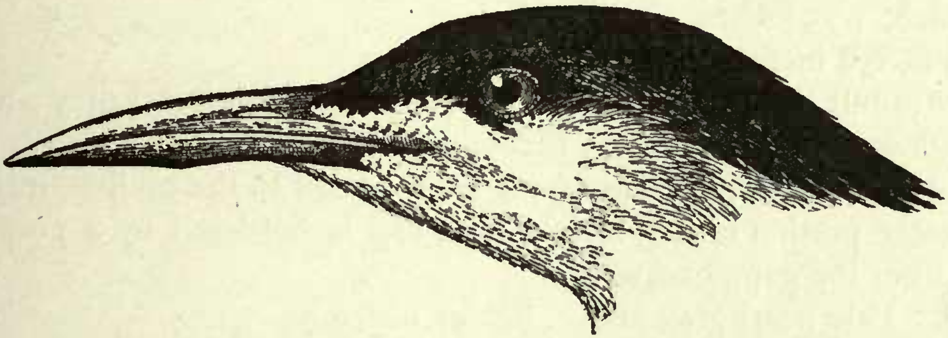
Geographical Range.—Cosmopolitan.

STERNA HIRUNDINACEA Lesson.

Sterna hirundinacea, Less. Traité d'Orn. p. 621 (1831: Santa Catarina); Puch. Rev. Zool. 1850, p. 539; Saunders, P. Z. S. 1876, p. 647; Durnf. Ibis, 1877, p. 43 (Chupat Valley, breeding, Nov.), 1878, p. 404 (Lake Colguape: Sengel River: Tambo Point, breeding, Dec.);

Milne Edwards, Bibl. Haut. XXI, Art. 4, p. 32 (1880); Saunders, Voy. Chall. II, Birds, p. 135 (1881: Messier, Channel, Elizabeth Island, Jan.); Sharpe, P. Z. S. 1881, p. 16 (Tom Bay, Nov.: Cockle Cove, Oct.); Saunders, P. Z. S. 1882, p. 522 (Chile); McFarlane, Ibis, 1887, p. 208 (Chimbote); Burm. An. Mus. Nac. Buenos Aires, III, part X, p. 248 (1888: Coast of Patagonia); Scl. & Huds. Argent. Orn. II, p. 196 (1889: Falkland Islands and Patagonia); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 183, 332 (1891. Orange Bay: Oushouaia); James, New List Chil. B. p. 12 (1892); Saunders, Cat. Bds. Brit. Mus. XXV, p. 52 (1896: Port Desire; Port Santa Cruz, Patagonia: Uranie Bay, Falkland Is.); Schalow, Zool. Jahrb. Suppl. IV, p. 658 (1898: Calbuco, Dec.); Sharpe, Hand-l. Bds. 1, p. 134 (1899); Salvad. Ann. Mus. Genov. (2) XX, p. 630 (1900: Rio de la Plata, Aug.); Martens, Hamb. Magalh. Sammelr. Vög. p. 16 (1900: Falkland Islands); Oats, Cat. Bds. Eggs., Brit. Mus. I, p. 182 (1901); Nicoll, Ibis, 1904, p. 43; id. Zoologist 1904, p. 406 (Straits of Magellan).

FIG. 110.



Sterna hirundinacea. Adult male. Natural size. From material in British Museum.

? Sterna minuta (lapsu Cal.?), Less. Hist. Nat. Mamm. et Ois. p. 155 (1834: Falkland Is.).

Sterna meridionalis Cass. (nec Brehm), U. S. Expl. Exped. p. 385 (1858: Orange Bay, Cape Horn); Schl. Mus. Pays. Bas. VI. Sternæ, p. 15 (1863: Falkland Is. and Chile).

Sterna antarctica Peale (nec Less. nec Forst. nec Wagl.), U. S. Expl. Exped. p. 280 (1848: Orange Bay, Cape Horn); Phil. & Landb. Cat. Av. Chil. p. 49 (1868).

Sterna cassini, Scl. P. Z. S. 1860, p. 391 (Falkland Islands); Abbott, Ibis, 1861, p. 166 (Falkland Is. breeding); Pelz. Reis. Novara, Vög.

p. 135 (1865: Isl. of Chiloe); Scl. & Salv. Ibis, 1869, p. 284 (St. Iago Bay, Dec.), 1870, p. 500 (Coquimbo, Aug.); iid. P. Z. S. 1871, p. 570 (Falkland Is. and Straits of Magellan); Cunningh. Nat. Hist. Str. Magell. pp. 74, 404 (1871: Santiago Bay); Scl. & Salv. Nomencl. Av. Neotr. p. 147 (1873); iid. P. Z. S. 1873, p. 147.

GENERAL DESCRIPTION.

Size (adult). — Total length, 16 to 16.5 inches.

Wing, 11.8 inches.

Tail, outer feathers, 7.0 inches.

Tail, depth of fork, 3.9 to 4.0 inches.

Culmen, 1.75 inches.

Tarsus, 0.8 inches.

Color (adult breeding). — General color above pale pearl grey; a black cap; below lighter pearl grey, becoming white posteriorly.

Head: A black cap reaches from the forehead to the occiput, including the greater portion of the lores. This cap is bordered by a pure white streak from the gape backward.

Neck: Pale pearl grey above, lighter beneath.

Back (mantle): Pale pearl grey. Rump white.

Wings: Like the mantle, the inner primaries and secondaries broadly margined with white.

Tail: White, the outer webs with a pale grey tinge.

Lower parts: Pale pearl grey, lighter than the mantle and becoming pure white in the region of the vent and lower tail coverts.

Bill: Vermilion. Legs and feet vermilion. Iris brown.

"Male: Tom Bay, November 30, 1879. Bill, legs, and feet red.

"Female: Cockle Cove, October 16, 1879. Bill and legs red; claws black; iris dark." Sharpe, P. Z. S. 1881, p. 16."

Adults in winter differ in being slightly paler above; the crown is mottled with white, and the under parts are nearly or quite white. This plumage is very transitory.

Young birds of the year are similar to the adults in winter, but have more grey on the rectrices and the outer webs of the primaries are much deeper grey. Bill, legs and feet reddish brown. Younger birds have a brownish bar across the upper wing coverts and the mantle is barred irregularly with dusky, buff and white. In this phase the bill is dusky; feet and legs yellowish brown. Nestlings are olive brown above, mottled with dusky umber; the throat is pale smoky black and the rest of the under parts are greyish white.

Geographical Range. — South America. Breeding from Rio de Janeiro to the Straits of Magellan. Also breeds in the Falkland Islands, South Georgia, the South Shetland Islands and the land to the south of Cape Horn and on the Pacific Coast of South America north to Peru.

The description is based on material in the British Museum of Natural History, the birds not being obtained by the Princeton Expeditions to Patagonia. However, it is a common bird and breeds at many points on the coast of this region, Bahia Blanca, Chupat, Port Santa Cruz, Elizabeth Island, Port Desire, Sandy Point, Tom Bay and Cockle Cove being some of the points from which this tern has been recorded.

From many sources we know that the eggs are used as food and one of the most graphic accounts of the nidification and general breeding economy of this species is appended. In "Mission Scientifique du Cap Horn, 1882–1883, Tome VI, première partie, page 184 (1891)" Dr. Oustalet says:

"Des notes que je viens de citer, des observations de M. Durnford et de l'examen des oiseaux qui ont été rapportés par l'expédition française on pourrait déjà conclure que la saison de la nidification, pour cette Hirondelle de mer, commence vers le mois de novembre et se continue jusqu'en janvier. Les naturalistes du *Challenger* qui se trouvaient, durant cette période de l'année, correspondant à notre printemps, dans les parages du détroit de Magellan, ont en effet recueilli un assez grand nombre d'œufs de *Sterna hirundinacea*, que M. H. Saunders a pu étudier et qui lui ont offert les mêmes variations de couleur et de dessin que les œufs des *Sterna macrura* et *fluviatilis.* Ces variations ont été constatées également par M. H. Durnford qui a visité, à la fin du mois de décembre 1877, une colonie de *Sterna hirundinacea* située à Tombo Point, à 60 milles environ au sud de la station de Chuput (ou Chupat). Cette colonie dont on lui avait signalé l'existence, dépassait en étendue tout ce qu'il avait pu imaginer. Les nids couvraient un espace de 150 yards carrés, ce qui, à raison de 3 nids par yard et de 5 œufs par nid (chiffres sans doute au-dessous de la vérité, puisque, dit M. Durnford, on ne pouvait guère faire un pas sans écraser des œufs), donnait un total de 67,500 nids, 135,000 oiseaux et 102,500 œufs!" (Apparently a printer's mistake makes the total number of eggs in the colony *102,500* when it should be *337,500*.)

Dr. Cunningham in his notes on the Natural History of the Strait of Magellan and West Coast of Patagonia, page 74 (1871) writes: "It was now nearly low tide, and a large Spit, from which the name Punta Arenas is derived, was consequently uncovered, and at its outer extremity a flock of Terns (*Sterna cassini*) with black-crowned heads and pale ash-colored and white bodies, were busily engaged in feeding where a bed of small mussels (*Mytilus Chilensis*) extended. The birds allowed me to approach them rather near, and then rose in a body into the air, flying about in a cloud over my head, and uttering a torrent of sharp angry cries, indignant at the stranger who had ventured to disturb them at their meal." *S. cassini* of Dr. Cunningham is known to be the species under consideration.

"I saw a Tern off the coast of the Banda Oriental on the afternoon of 1st October which was, I am pretty sure, of this species. On the 10th June, when off the coast, I observed a small flock of the same. This was in the forenoon; at noon we were 113 knots distant from Montevideo." (O. V. Alpin, on birds Uruguay, Ibis, p. 210, 1894.)

"This Tern was abundant in the Straits of Magellan, especially off Dungeness Point, at the eastern extremity, where I saw hundreds as we steamed past. I shot two adult examples from the beach near Punta Arenas, where I found a fair number of individuals. I brought them within shot by knocking two large flints together—a very good way to attract Terns." (M. J. Nicoll, Orn. Jour. Voy. round World, Ibis, Jan. 1904, p. 43.)

"On Jan. 29th we went through the first narrows and passed Elizabeth Island, and then went through the second narrows, where we passed hundreds of Terns (*Sterna hirundinacea*), Penguins, Albatrosses (*Diomedea melanophrys*), and Diving Petrels. There was one Giant Petrel. On the shore we could see many Huanacos walking about. In the afternoon we arrived at Punta Arenas, the only town in the Straits. Here I found that shooting birds was forbidden; however, I managed to get permission from the Governor to collect a few. The hills behind the town are covered with forests of beech trees (*Fagus antarctica*). We left Punta Arenas on Feb. 3rd." (M. J. Nicoll, Orn. Jour. Voy. round World, Ibis, Jan. 1904, p. 41–42.)

STERNA MAXIMA Boddaert.

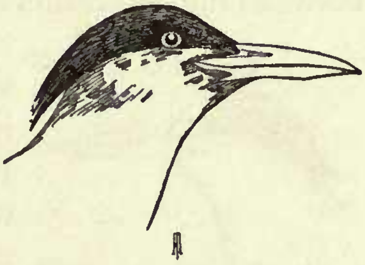
Hirondelle de Mer de Cayenne, D'Aubent, Pl. Enl. IX, pl. 988.

Grande Hirondelle de Mer de Cayenne, Buff. Hist. Nat. Ois. VIII, p.346 (1783).

Sterna maxima, Bodd. Tabl. Pl. Enl. p. 58 (1783); Scl. & Salv. P. Z. S. 1871, p. 567; iid. Nomencl. Av. Neotr. p. 147 (1873); Saunders, P. Z. S. 1876, p. 655, 1882, p. 521; Burm. An. Mus. Nac. Buenos Aires, III, part X, p. 248 (1888: North and Central Patagonia); Scl. & Huds. Argent. Orn. II., p. 195 (1889); Saunders, Cat. Bds. Brit. Mus. XXV., p. 80 (1896); Sharpe, Hand-List, Bds. I. p. 135 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 187 (1901).

Cayenne Tern, Lath. Gen. Syn, III. pt. 2, p. 352 (1785).

FIG. 111.



Sterna maxima. Profile of head. Adult male. 4773 P. U. O. C. Breeding. About ⅓ natural size.

GENERAL DESCRIPTION.

Size. — Adult, Breeding. (Male, 4773, P. U. O. C. Cobbs Island, Virginia, 16 May, 1881, W. E. D. S.). Total length, about 21 inches.

Wing, 14.2 inches.
Tail, 8.1 inches.
Tail (depth of fork), 3.7 inches.
Culmen, 2.75 inches.
Tarsus, 1.4 inches.

Color. — Adult, breeding (spec. cit.). General color above pearl grey, white on neck and with black cap; below pure white.

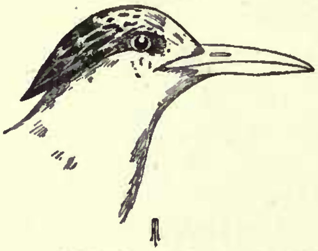
Head: With a black cap, reaching down on sides to a line level with the lower eyelid, which is white, interrupting the continuity of the line of the cap. The black of the cap occupies the upper half of the loral region. The feathers of the occipital portion of the cap are acuminate and prolonged. Remainder of head, *i. e.*, lower sides of face, the auricular region and lower half of the loral region white.

Neck: Wholly white.

Back: Mantle pearl grey; rump and upper tail coverts pale pearl grey.

Wing: In general color pearl grey, with a decided white line along the carpal joint. The first primary dark grey on outer web, heavily frosted with pearl grey; a third of the inner web dark grey to tip, frosted like the outer web. Remainder of inner web, abruptly whiter, the line of division between the two colors absolutely straight for the entire length. The white on the inner webs of the rest of the primaries cutting into the grey of the inner web toward the tip in well-defined wedges. The extreme edge of all the inner webs of the primaries at their ends, narrowly margined with white. Shafts of all the primaries ivory white. The secondaries are edged with white, but not conspicuously.

FIG. 112.



Sterna maxima. Profile of head. Female. 4770 P. U. O. C. Winter plumage. About ⅓ natural size.

Tail: Pearly white. Under parts: Pure white. Bill: Reddish orange. Tarsi: Black. Feet: Black. Iris: Dark hazel brown.

The female differs from the male in having on the average a stouter bill and shorter streamers to the tail. Both sexes begin to have a few white feathers show on forehead and crown early in the breeding season.

Adults in autumn and winter (Female, 4770, P. U. O. C., Gulf coast of Florida, 15 December, 1879, W. E. D. S.), are similar to breeding birds, but have the forehead and loral region wholly white, the crown mottled with black feathers, and the long occipital feathers edged with white in a varying degree. Bill pale orange. There is generally a crescentic black area just in front of the eye. Immature young birds of the year have whiter crowns and a greater admixture of white in the black feathers of the occipital region. There is also a varying amount of grey or brownish grey on the wing coverts, the secondaries, and toward the tips of the rectrices.

Young birds fully grown have dusky brown streaks on the lores, the forehead and fore part of the crown; the mantle is darker than in adults, more or less striated and marked with deeper grey, dusky and buffy; this extends to the rump and upper tail coverts. The primaries are iron-grey, tail much darker than in the adult, especially toward the extremities of the feathers. The bill, tarsi and feet are dull brownish yellow.

Geographical Range.—America; Atlantic coast, breeding from the Capes of the Delaware south to the West Indies and ranging as far north as the New England States; also to the larger inland waters of the United States during the warmer months.

On the Pacific coast the birds range from California southward to Peru. During the winter months they are distributed on the Atlantic from the Carolinas southward; and at this season they are also found on the African Coast from the Straits of Gibraltar south to Angola. They have been recorded from Northern and Central Patagonia. (Burm. t. c. ante, p. 248.)

The Royal Tern was not obtained by the Princeton Expeditions to Patagonia. The descriptions are based on the individuals cited, together with the large series in the Princeton Museum, and on material in the British Museum of Natural History.

The breeding habits of the Royal Tern do not differ from its congeners of terrestrial habit. At Cobbs Island, on the coast of Virginia, during the season of 1881, these birds were abundant and bred in great numbers. The eggs were laid in depressions in the bare sand and were often near together, the adult birds being eminently gregarious.

STERNA SUPERCILIARIS Vieillot.

Hati ceja blanca, Azara, Apunt. III. p. 377 (1802).

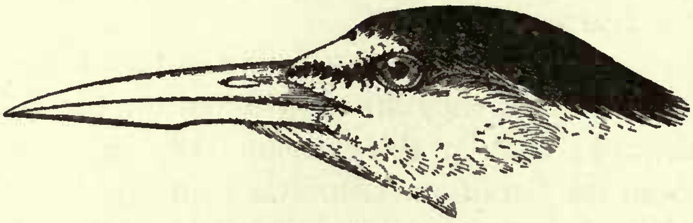
Hati manchado, Azara, tom cit. p. 377.

Sterna superciliaris, Vieill. N. Dict. d'Hist. Nat. XXXII. p. 126 (1819: ex Azara); Scl. & Salv. P. Z. S. 1871, p. 571; iid. Nomencl. Av. Neotr. p. 147 (1873); Saunders, P. Z. S. 1876, p. 662; Durnf. Ibis, 1876, p. 165 (Monte Video, May), 1877, p. 201 (Baradero, April); White, P. Z. S. 1882, p. 628 (Missiones); Scl. & Huds. Argent. Orn. II. p. 197 (1889); Saunders, Cat. Bds. Brit. Mus. XXV. p. 124 (1896); Sharpe, Hand-Lists Bds. I. p. 137 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. p. 195 (1901).

Sterna maculata, Vieill. N. Dict. d'Hist. Nat. XXXII. p. 176 (1819: ex Azara).

Sterna argentea, Hartl. Ind. Azara, p. 26 (1847); Burm. Reis. La Plata, II. p. 419 (1861: Rio Parana).

FIG. 113.



Sterna superciliaris. Adult male. Natural size. From material in British Museum.

GENERAL DESCRIPTION.

Size.—Adult (breeding). Total length, 9 inches.

Wing, 7.25 inches.

Tail, 3.25 inches.

Tail (depth of fork), 1.3 inches.

Culmen, 1.5 inches.

Tarsus, 0.65 inches.

Color.—Adult (breeding). Above, mantle, wings and neck rather dark pearl grey. A black cap on head. Below pure white.

Head: With a black cap extending from forehead back to nape, and on sides of head to a line even with the lower eyelid. Forehead white, extending back in a broad band to the middle of the upper eyelid. (See cut 113.) The lores white, divided by a narrow black streak reaching from the eye to upper part of the upper mandible. The remainder of sides of head and face white.

Neck: Deep pearl grey above, shading gradually on the sides into white; below pure white.

Back: Mantle, rump and upper tail coverts deep pearl grey.

Wings: Deep pearl grey, with a brownish tinge on the inner secondaries. The *four* outer primaries, almost wholly dusky black, with narrow white margins on the inner webs of the first two, and very little white on the third and fourth.

Tail: Like back, but with faint whitish edging to each feather; the streamers paler and with a greater inclination toward whitish.

Bill: Stout and deep at base *and entirely greenish yellow, without black tip.* Tarsi: Dull yellow. Feet: Dull yellow. Iris: Dark hazel brown.

Adult. Autumnal and winter plumage.—Similar to the breeding dress but with the black loral streak broken into black dotting or specks; the black of the cap much flecked and spotted with white feathers.

Immature birds of the year in fall.—Like adults, except the lores are wholly white; forehead white; crown grey with dusky streaks; around the eye these being concentrated form a broad dusky band on each side of the head, which reaching back joins on the nape; the primaries have a browner shade; the bill is dull yellow with a *brownish horn tip.*

Young. Flight age.—Lores greyish; a marked whitish superciliary stripe; crown darker than lores, specked with dark brown; a blackish band extending from eye to eye, across the nape; mantle grey, shaded with buffy and barred with ashy grey; tail mottled with ashy on a grey ground; base of bill dull yellow shading into horn color; tarsi and toes dull yellowish.

Geographical Range.—South America. From the Orinoco to the La Plata, ascending rivers well into the interior; Northern Patagonia.

This small tern was not obtained by the Princeton Expeditions to Patagonia, where it is apparently uncommon if not rare. The diagnoses and descriptions of different plumages are based on material in the British Museum of Natural History. Closely allied to *S. antillarum*, the changes in plumage due to age, and correlated with the seasons are very similar in both species, but the difference in size and the color of the primaries serve at all times in readily distinguishing the two species whose geographical ranges almost or quite meet.

"Of these, three or four were observed wheeling about over the river Saima, about a league up it from the Parana. They have a sprawling, quick flight, settling now and again on the rocks on the edge of the river. Dashing down and skimming the water, they dip every now and again for fish, after which they rise high in the air." (E. W. White, P. Z. S. p. 628, 1882.)

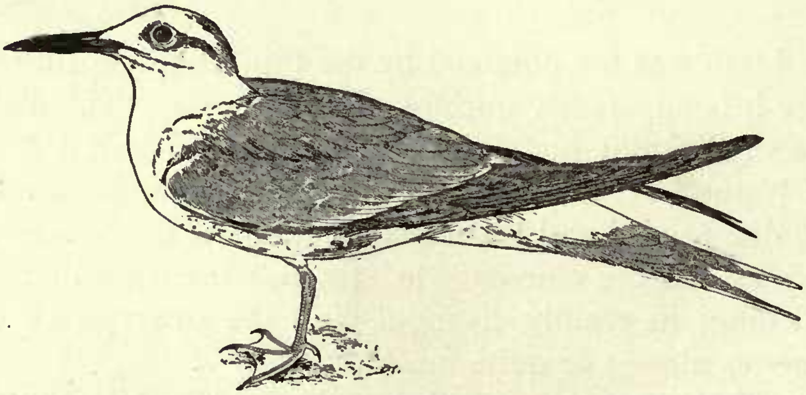
STERNA TRUDEAUII Audubon.

Sterna trudeauii, Audub. Orn. Biogr. V. p. 125 (1839); Des Murs in Gay's Hist. Chil. Zool. I. p. 484 (1847); Phil. & Landb. Cat. Av. Chil. p. 49 (1868: Santiago: Colchagua); Durnf. Ibis, 1876, p. 165 (Monte Video, May), 1877, p. 200 (Flores Isl. mouth of La Plata, March; Punta Lara); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: Coast of Northern Patagonia); Scl. & Huds. Argent. Orn. II. p. 195 (1889: Punta Lara); Holland, Ibis, 1890, p. 428 (Buenos Ayres breeds); Saunders, P. Z. S. 1891, p. 373 (Argentina); James, New List Chil. B. p. 12 (1892); Holland, Ibis, 1892, p. 212, Estancia Espartilla, common, breeds in Nov.); Saunders, Cat. Bds. Brit. Mus. XXV. p. 130 (1896); Sharpe, Hand-List Bds. I. p. 137 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I, p. 196 (1901).

Phaëtusa sellovii, Licht. Nomencl. Av. Mus. Berol. p. 98 (1854: Maldonado).

Sterna frobeenii, Phil. & Landb. Weigm. Arch. 1863, p. 125 (Arica Bay, Sept.); iid. Cat. Av. Chil. p. 49 (1868).

FIG. 114.



Sterna trudeauii. Adult male. About ⅓ natural size. From material in American Museum.

GENERAL DESCRIPTION.

Size. — Adult (breeding). Total length, about 15 inches.

Wing, 10.5 inches.

Tail, 5.8 inches.

Tail (depth of fork), 2.8 inches.

Culmen, 1.7 inches.

Tarsus, 0.95 inches.

Color. — Adult (breeding). General color above pearl grey becoming white on the crown and nape; lower parts pale pearl shading to white on the throat and chin.

Head: White, with a black streak beginning in front of the eye, which it surrounds, and extending backward over the ear coverts.

Neck: Pearl grey.

Back: Mantle pearl grey fading to nearly white on the rump and upper tail coverts.

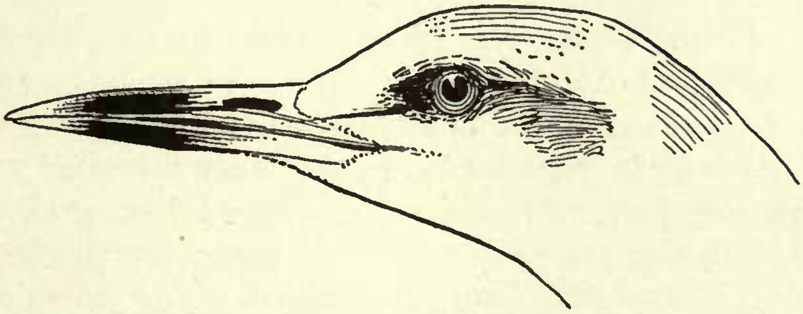
Wing: Rather paler than the mantle; secondaries broadly edged with white, the inner primaries to a lesser degree; the outer primaries, with the inner webs, pale grey next to the shafts and dark grey on the margins, the "wedges" nearly white. Shafts of quills white.

Tail: Pale pearl grey, the longer rectrices with silvery white outer webs.

Lower parts: Pale pearl grey shading into pure white on the throat and chin.

Bill: Yellow, darkest at the base, shading to lighter toward the tip, and with a black band at the gonys. Tarsi: Orange. Feet: Orange.

FIG. 115.



Sterna trudeaui. Young Male, winter. Profile of head. From material in the American Museum. Natural size.

Adult in autumn and early winter.—Similar to breeding birds, except that the band on the side of the head is not so well defined, and has become deep grey instead of black. The feathers in general have a more silvery appearance, this being especially noticeable in the quills which are heavily "frosted" with silvery white.

Immature birds in autumn and winter vary from adults at these seasons in having the centers of the long inner secondaries ashy-grey. The eye streak is more pronounced and deeper in color. The bill is dull yellowish brown at the base and yellow at the tip.

Young birds, first flight, have the eye streak longer with an indication of a grey crescentic band across the nape. The crown is greyish, slightly mottled with buffy brown, as are the feathers of the mantle. The tail feathers are dark ashy grey with defined white edgings. The bill is yellowish brown at the base and dusky or blackish for the rest of its length *without* a *yellow tip*. The legs and feet are yellowish flesh color.

Geographical Range.—Atlantic coast of South America from Rio Janeiro to Argentina, and north casually to the United States (Long Island and New Jersey). On the Pacific coast of South America the Chilian coast north to Southern Peru.

Trudeau's tern was not obtained by the Princeton Expeditions to Patagonia and, while it is known to occur on the northern portion of the coast, it is very rare, if found at all, far south in the region.

The descriptions are based on the material in the British Museum of Natural History.

Curiously, this South American species which must be regarded as accidental in the United States, was first described by John James Audubon in his Ornithological Autobiography. He says (t. c. p. 125): "This beautiful Tern, which has not hitherto been described, was procured at Great Egg Harbour in New Jersey, by my much esteemed and talented friend, J. Trudeau, Esq., of Louisiana, to whom I have great pleasure in dedicating it. Nothing is known as to its range, or even the particular habits in which it may differ from other species. The individual obtained was in the company of a few others of the same kind. I have received from Mr. Trudeau an intimation of the occurrence of several individuals on Long Island."

In its winter plumage, which was that of the type described by Audubon, Trudeau's Tern somewhat resembles the winter plumage of *Sterna forsteri*, but this last bird always shows more marked *coloration on the crown*. The eye bar of *Sterna forsteri is darker and better defined in winter* and the *bill* of *S. forsteri* never has *a yellow tip*. I have before me forty-one examples of *S. forsteri*, taken on the Gulf coast of Florida in November and December, 1879, and January, 1880, which form a part of the large series of these birds in the Princeton University collection. This entire series of winter examples of *Sterna forsteri* bear out the generalization just set forth. Moreover, the individual variation is not great.

Subfamily *RHYNCHOPINÆ*.

Saunders, Cat. Bds. Brit. Mus. XXV, p. 152 (1896); Sharpe, Hand-List Bds. I. p. 138 (1899).

Genus RHYNCHOPS Linnæus.

Type.

Rhynchops, Linn. Syst. Nat. I. p. 223 (1766); Saunders, Cat. Bds. Brit. Mus. XXV. p. 152 (1896); Sharpe, Hand-List Bds. I. p. 138 (1899) . . . . *R. nigra.*

Rhynchopsalia, Gloger, Hand- u. Hilfsb. p. 463 (1842).

Geographical Range.—Temperate and tropical North and South America. Tropical and juxta-tropical Africa and India to Burma.

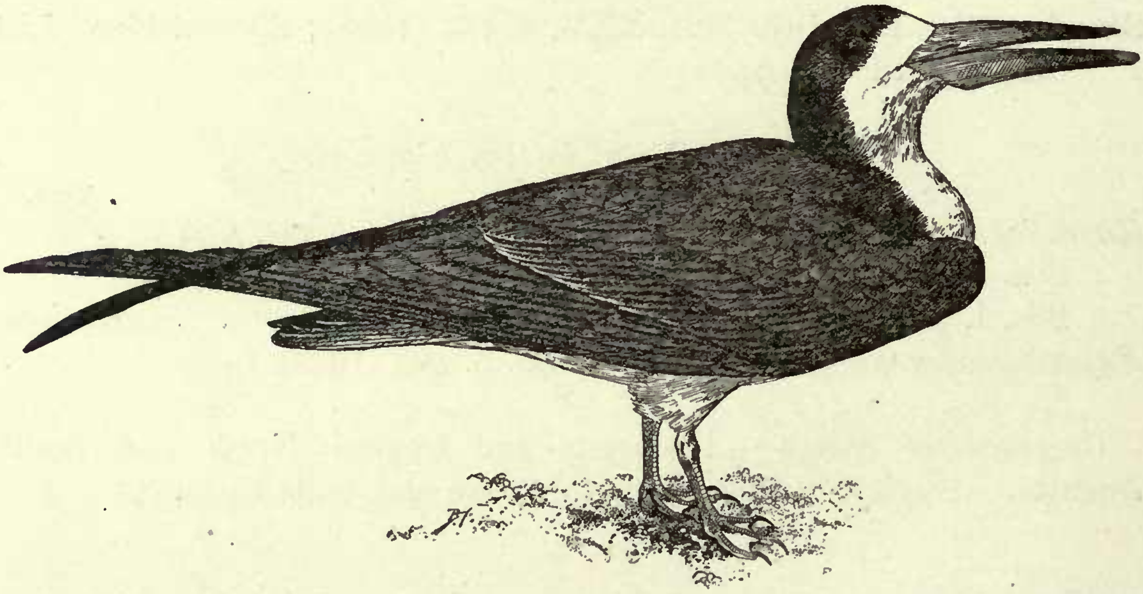
Rhynchops melanura Swainson.

Rayador, Azara, Apunt. III. p. 329 (1802).

Rhynchops nigra, Licht. Verz. Doubl. p. 80 (1823: ex Azara); Less. Man. d'Orn. II. p. 285 (1828: Chile); Darwin, Voy. Beagle, Birds, p. 143 (1841: on the east and west coasts of South America between latitudes 30° and 45°); Fraser, P. Z. S. 1843, p. 119 (coast of Chile); Hartl. Ind. Azara, p. 26 (1847); Burm. La Plata Reis. II. p. 520 (1861: Rio Paraná); Pelz. Reis. Novara, Vög. p. 151 (1865: Chile); Phil. & Landb. Cat. Av. Chil. p. 50 (1868); Scl. & Salv. P. Z. S. 1869, p. 634 (Arg. Rep.); iid. Nomencl. Av. Neotr. p. 147 (1873); Durnf. Ibis, 1877, p. 200 (Buenos Ayres, Nov., Jan.); White, P Z. S. 1882, p. 628 (Monte Grand, Buenos Ayres, Feb., not common); Burm. An. Mus. Nac. Buenos Ayres, III. part X. p. 248 (1888: Patagonia); Scl. & Huds. Argent. Orn. II. p. 193 (1889: Bahia Blanca, breeding).

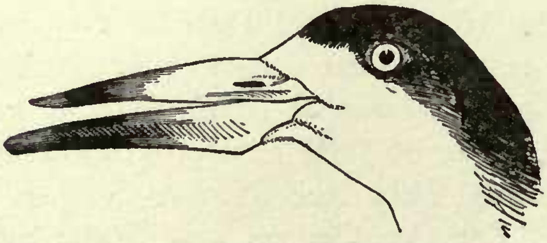
Rhynchops melanura, Swains. Classif. B. II. p. 373 (1837); Scl. & Salv. Ibis, 1869, p. 284 (Ancud, Chiloe, May); Saunders, P. Z. S. 1882, p. 522 (Coquimbo Bay, Nov.); James, New List Chil. B. p. 12 (1892); Saunders, Cat. Bds. Brit. Mus. XXV. p. 156 (1896: Straits of Magellan and Coast of Chile); Sharpe, Hand-List Bds. I. p. 138 (1899); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 201 (1901).

FIG. 116.



Rhynchops melanura. Adult male. About ⅓ natural size. From material in American Museum.

FIG. 117.



Rhynchops melanura. Profile of head. From material in the American Museum. ½ natural size.

GENERAL DESCRIPTION.

Size. — Adult male (breeding). Total length, about 20 inches.

Wing, 16–17 inches.

Tail, 5.5 to 6 inches.

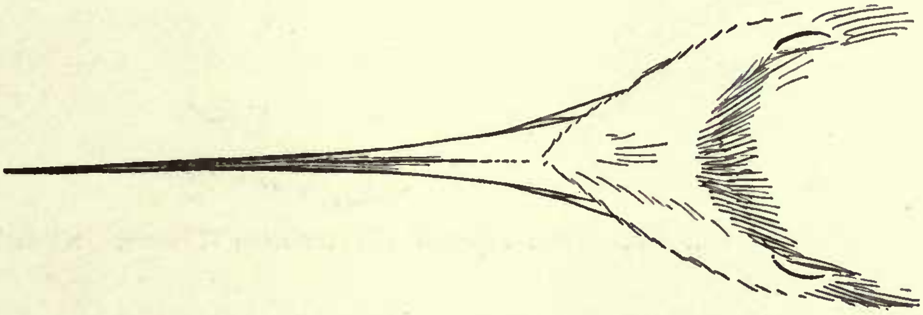
Culmen, 4 inches.

Bill (tip to gonys), 4.9 inches.

Tarsus, 1.4 inches.

Female smaller, only about 16.5 inches total length, the culmen being 2.7 to 2.8 compared with 4 inches for culmen in male.

FIG. 118.



Rhynchops melanura. Bill from above. From material in the American Museum. Natural size.

Color.—Adult male (breeding). General color of the upper parts black, of the lower parts white.

Head: Forehead (to the depth of an inch), lores and sides of face from just below the eye white. Crown and remainder of head black.

Neck: Black above and abruptly white on sides and beneath.

Back: Mantle, rump and upper tail coverts black, with a brown tinge.

Wing: Black with a brown tinge; the primaries black, the three or four outer ones with the tips and terminal margins white; the secondaries with a narrow white end to each feather; *no other wing feathers with white markings.*

Tail: *Dark blackish brown* on its upper surface, *with very narrow white edging;* paler brown on its under surfaces.

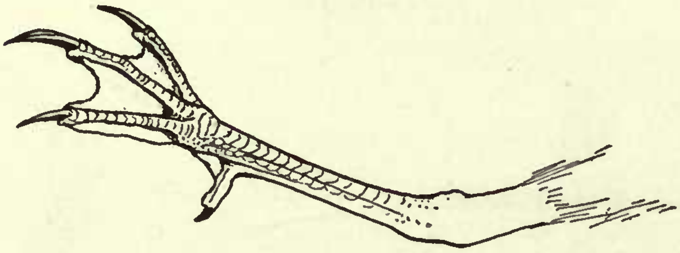
Lower parts white, except the *under wing coverts,* which are *greyish brown.*

Bill: Reddish orange, yellow at the base, anterior portion black. Tarsi: Dull orange, shaded with black. Feet: Toes and webs dull orange, shaded with black. Iris: Dark hazel brown.

I have been unable to examine the winter phase of the adult plumage, and have seen no immature, young or nestlings. All of these phases of plumage, however, are probably similar to those of *R. nigra,* with which this species has frequently been confused even down to within a few years.

Geographical Range.—Coast, rivers and larger inland bodies of water of South America. Lake Titicaca. Straits of Magellan. Coasts of Patagonia and Chili. The coast of Peru. Probably resident and breeding almost throughout its range.

FIG. 119.



Rhynchops melanura. Left foot. From a specimen in American Museum. Natural size.

Though this species was not collected by the Princeton Expeditions, I find mention made of a flock of "skimmers" in the notes of one of the naturalists of the expedition, which refers undoubtedly to this bird.

Darwin's account is of special interest. I quote (Voyage of the "Beagle," Zoology, Birds, Gould, p. 143, 1841): "I saw this bird both on the East and West coast of South America, between latitudes 30° and 45°. It frequents either fresh or salt water. Near Maldonado (in May), on the borders of a lake, which had been nearly drained, and which in consequence swarmed with small fry, I watched many of these birds flying backwards and forwards for hours together, close to its surface. They kept their bills wide open, and with the lower mandible half buried in the water. Thus skimming the surface, generally in small flocks, they ploughed it in their course; the water was quite smooth, and it formed a most curious spectacle to behold a flock, each bird leaving its narrow wake on the mirror-like surface. In their flight they often twisted about with extreme rapidity, and so dexterously managed, that they ploughed up small fish with their projecting lower mandibles and secured them with the upper half of their scissor-like bills. This fact I repeatedly witnessed, as, like Swallows, they continued to fly backwards and forwards close before me. Occasionally, when leaving the surface of the water, their flight was wild, irregular and rapid; they then also utterd loud, harsh cries. When these birds were seen fishing, it was obvious that the length of the primary feathers was quite necessary in order to keep their wings dry. When thus employed, their forms resembled the symbol, by which many artists represent marine birds. The tail is much used in steering their irregular course.

"These birds are common far inland, along the course of the Rio Parana; and it is said they remain there during the whole year and that they breed in the marshes. During the day they rest in flocks on the grassy plains, at some distance from the water. Being at anchor in a small vessel, in one of the deep creeks between the islands in the Parana, as the evening drew to a close, one of these scissor-beaks suddenly appeared. The water was quite, still and many little fish were rising. The bird continued for a long time to skim the surface; flying in its wild and irregular manner up and down the narrow canal, now dark with the growing night and the shadows of the overhanging trees. At Monte Video, I observed that large flocks remained during the day on the mud banks, at the head of the harbour; in the same manner as those which I observed on the grassy plains near the Parana. Every evening they took flight in a straight line seaward. From these facts I suspect that the Rhyncops frequently fishes by night, at which time many of the lower animals come more abundantly to the surface than during the day. I was led by these facts to speculate on the possibility of the bill of the Rhyncops, which is so pliable, being a delicate organ of touch. But Mr. Owen, who was kind enough to examine the head of one, which I brought home in spirits, writes to me (August 7, 1837,) that—

"'The result of the dissection of the head of the Rhyncops, comparatively with that of the head of the duck, is not what you anticipated. The facial, or sensitive branches of the fifth pair of nerves, are very small; the third division in particular, is filamentary, and I have not been able to trace it beyond the soft integument at the angles of the mouth. After removing with care, the thin horny covering of the beak, I cannot perceive any trace of those nervous expansions which are so remarkable in the lamelli-rostral aquatic birds; and which in them supply the tooth-like process, and soft marginal covering of the mandibles. Nevertheless, when we remember how sensitive a hair is, through the nerve situated at its base, though without any in its substance, it would not be safe to deny altogether, a sensitive faculty in the beak of the Rhyncops.'"

Punta Arenas. "Later in the day a few of us spent some time on shore, and one of the officers succeeded in shooting a male and female scissor-bill (*Rhynchops melanura*)." (Cunn. Nat. Hist. Str. Magell. 1871, p. 365.)

Subfamily *LARINÆ*.

Saunders, Cat. Bds. Brit. Mus. XXV. p. 161 (1896); Sharpe, Hand-List Bds. I. p. 139, 1899.

Genus LARUS Linnæus.

	TYPE.
Larus, Linn., Syst. Nat. i. p. 224 (1766); Saunders, Cat. Bds. Brit. Mus. XXV. p. 169 (1896); Sharpe, Hand-List Bds. I. p. 139 (1899).	
Xema, Boie, Isis, 1822, p. 563; id. op. cit. 1844, p. 192 (partim).	
Gavia Macgill. Man. Brit. Orn. pt. 2, p. 239 (1842).	
Gavia, Boie, Isis, 1844, p. 191 (partim).	
Gavia, Kaup, Natürl. Syst. p. 99 (1829)	*L. ridibundus.*
Leucus, Kaup, Natürl. Syst. p. 84 (1829)	*L. marinus, etc.*
Leucus, Bp. Consp. Av. ii. p. 215 (1857)	*L. argentatus, etc.*
Hydrocolœus, Kaup, Natürl. Syst. p. 113 (1829)	*L. minutus, etc.*
Ichthyaëtus, Kaup, Natürl. Syst. p. 102 (1829)	*L. ichthyaëtus.*
Laroides, Brehm, Isis, 1830, p. 993; id. Vög. Deutschl. p. 738 (1831); Bp. Consp. Av. ii. p. 217 (1857)	*L. argentatus, etc.*
Chroicocephalus, Eyton, Brit. B. p. 53 (1837)	*Lari cucullati.*
Kroicocephalus, Jameson, Journ. Asiat. Soc. viii. p. 243 (1839)	
Chroicephalus, Reichenb. Av. Syst. Nat. Longip. p. v. (1852)	
Chroocephalus, Scl. & Salvin, P. Z. S. 1871, p. 576, footnote	
Chroïcocephalus, H. T. Wharton, Zool. 1878, p. 105	
Chroeocephalus, Heine & Reichenow, Nomencl. Mus. Hein. p. 358 (1890)	
Plautus, Reichenb. Av. Syst. Nat., Longip. p. v. (1852)	*L. glaucus.*

Glaucus, Bruch. J. f. O. 1853, p. 101	*L. glaucus.*
Dominicanus, Bruch. J. f. O. 1853, p. 100; id. op. cit. 1855, p. 280	*L. marinus, etc.*
Gavina, Bp. Naumannia, 1854, p. 212	*L. canus, etc.*
Gavina, Bp. Consp. Av. ii. p. 222 (1857)	*L. audouini.*
Blasipus, Bruch. J. f. O. 1853, p. 108	*L. modestus.*
Leucophæus, Bp. (nec. Bruch. 1853) Naum. 1854, p. 211; id. Consp. Av. ii. p. 231 (1857)	*L. heermanni, etc.*
Blasipus, Bp. Naum. 1854, p. 211; id. Consp. Av. ii. p. 211 (1857)	*L. modestus, etc.*
Blacipus, Heine & Reichenow, Nomencl. Mus. Hein. p. 357 (1890)	*L. crassirostris.*
Adelarus, Bruch. J. f. O. 1853, p. 106, ex Bp. MS. *Adelolarus*, Heine & Reichenow, Nomencl. Mus. Hein. p. 358 (1890)	*L. leucophthalmus, etc.*
Gelastes, Bp. Naum. 1854, p. 212	*L. gelastes.*
Atricilla, Bp. Naum. 1854, p. 212	*L. atricilla.*
Melagavia, *Gavia*, *Cirrhocephala*, Subg., Bp. Naum. 1854, pp. 212-213	*Lari cucullati.*
Cirrocephalus, Bruch. J. f. O. 1855, p. 288	*L. cirrhocephalus.*
Bruchigavia, Bp. Consp. Av. ii. p. 228 (1857)	*L. novæ hollandiæ.*
Clupeilarus, Bp. Consp. Av. ii. p. 220 (1857)	*L. fuscus, etc.*
Lambruschinia, Salvad. Cat. Ucc. Sard. p. 128 (1864)	*L. gelastes.*
Einalia, Heine & Reichenow, Nomencl. Mus. Hein. p. 358 (1890)	*L. argentatus.*
Melanolarus, Heine & Reichenow, Nomencl. Mus. Hein. p. 359 (1890)	*L. franklini.*
Epitelolarus, Heine & Reichenow, Nomencl. Mus. Hein. p. 359 (1890)	*L. heermanni.*

Geographical Range.—Throughout the World, except Polynesia and the Central Pacific Ocean.

LARUS MACULIPENNIS Lichtenstein.

Gabiota blanca, Azara, Apunt. III. p. 363 (1802: Paraguay).

Larus maculipennis, Licht. Verz. Doubl. p. 83 (1823: Montevideo); Scl. & Salv. Nomencl. Av. Neotr. p. 148 (1873: Argent. Rep.); Durnf. Ibis, 1876, p. 165 (Montevideo); id. Ibis, 1877, p. 43 (Pot Harbour, Chupat Valley, Dec. breeding), p. 202 (Baradero, April); id. Ibis, 1878, p. 405 (Lake Colgaupe: Sengel River, breeding); Saunders, P. Z. S. 1878, p. 201 (Chupat Valley); id. Journ. Linn. Soc. XIV, p. 399 (1878); Gibson, Ibis, 1880, p. 163 (Cape San Antonio, Buenos Ayres); White, P. Z. S. 1882, p. 628 (Punta Lara, Feb.: Pacheco, March: Salta, Oct.); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: Coast of Patagonia); Withington, Ibis, 1888, p. 472 (Lomas de Zamora, very abundant); Scl. & Huds. Argent. Orn. II. p. 198 (1889); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 308 (1891); Saunders, P. Z. S. 1891, p. 373 (Buenos Ayres, eggs); Huds. Natural. in La Plata, p. 66 (1892); Holland, Ibis, 1892. p. 213 (Estancia Espartilla, common resident, breeds in Nov.); Aplin, Ibis, 1894, p. 211 (Montevideo Bay, Oct., April and May); Holland, Ibis, 1895, p. 216 (Estancia Sta. Elena); Saunders, Cat. Bds. Brit. Mus. XXV. p. 200 (1896: East Patagonia); Holland, Ibis, 1897, p. 287 (Estancia Sta. Elena, breeding), Scl. t. c. p. 312 (Vina del Mar: Aranco: Laraqueti); Schalow. Zool. Jahrb. Suppl. IV. p. 657 (1898; Cavanche); Sharpe, Hand-List Bds. I. p. 140 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 17 (1900: South Patagonia); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 297 (1901).

Xema (*Chroicocephala*) *cirrhocephalum*, Darwin (nec. Vieill.), Voy. "Beagle," Birds, p. 142 (1841: Bahia Blanca).

Xema cirrhocephala, Gray (nec. Vieill.), List. B. Brit. Mus. Part III. p. 173 (1844: East Patagonia).

Larus cirrhocephalus, Hartl. (nec. Vieill.) Ind. Azara, p. 26 (1847); Schl. Mus. Pays Bas. VI. Lari, p. 36 (1863: Paraguay); Scl. & Salv. P. Z. S. 1868, p. 146 (Conchitas); Huds. P. Z. S. 1870, p. 802, 1871, p. 4 (Buenos Ayres); Sharpe, P. Z. S. 1881, p. 16 (Talcahuano. Sept.)

Larus serranus, Burm. (nec. Tschudi), Reise La Plata, II. p. 519 (1861: Entrerios, Mendoz, Paraná).

GENERAL DESCRIPTION.

Size.—Adult male (breeding). Total length, about 15 inches.

Wing, 12 inches.

Tail, 5 inches.

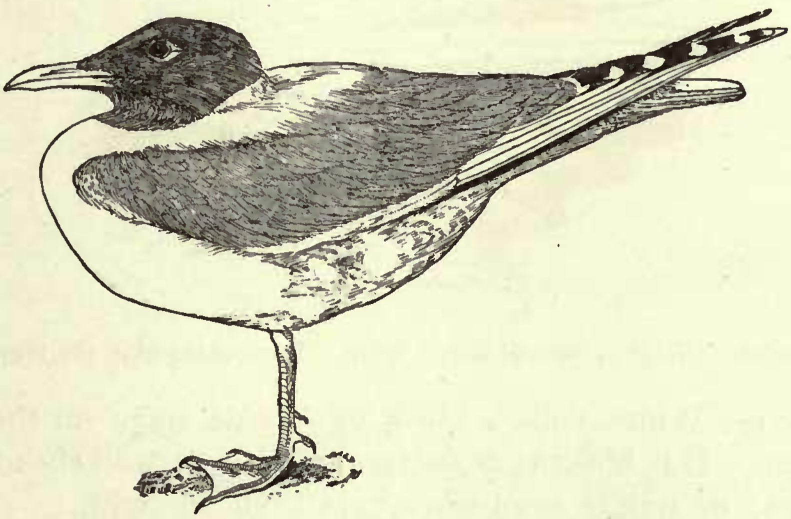
Tarsus, 2 inches.

Culmen, 1.7 inches.

Adult female birds at the same season average a little smaller.

Color.—Adult male (breeding). General color, grey above; below white; with a brown hood.

FIG. 120.



Larus maculipennis. Adult male. ⅓ natural size. From material from Museo de la Plata.

Head: With a hood of deep cinnamon brown, extending down on the neck, shading into umber on the nape and throat; unbroken save by white eyelids and a white patch behind the eye.

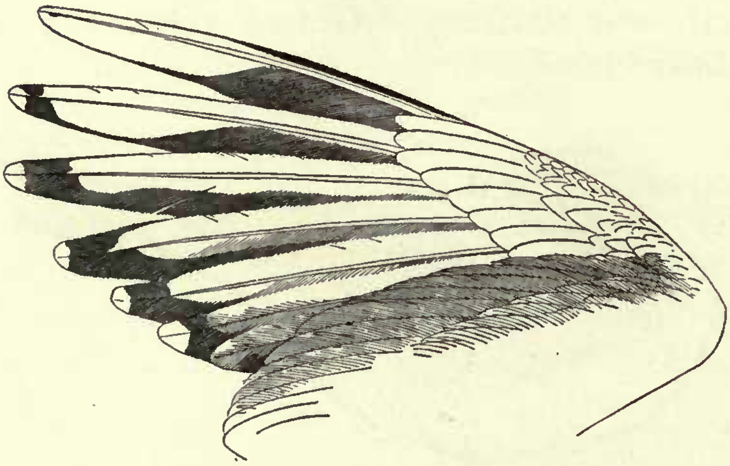
Neck: Exclusive of hood, white.

Back: Mantle pale bluish grey shading into almost white on the rump and upper tail coverts.

Wing: Coverts like the mantle; primaries black with white decorations and markings as follows: First primary white at apical end on both sides of shaft for three inches; and black on both sides of the white shaft. Second primary outer web white, and the inner web with a white area next to the shaft (see Fig. 121), the larger part of this web black. The tip of both webs white, a black subterminal bar crossing the feather below this tip. In some individuals, presumably very old birds, this bar is confined to the inner web. Third primary similar, but with more subterminal black. Fourth primary similar, but with the greyish black inner web joining the shaft. Fifth primary greyish black on both webs and with a subterminal bar which is frequently incomplete. The other primaries grayish black. Under wing coverts *grey.*

Tail: White.

FIG. 121.



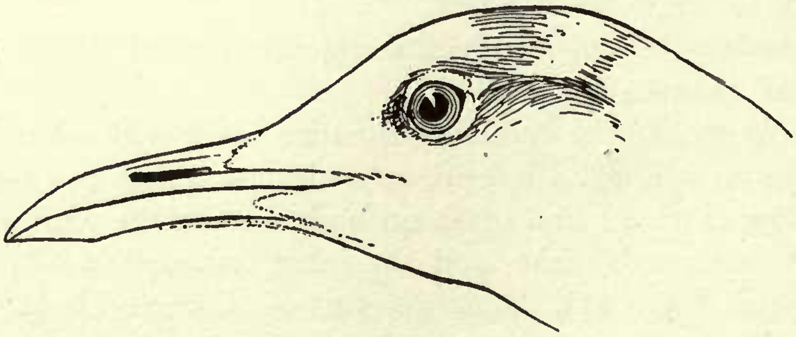
Larus maculipennis. Wing, ⅓ natural size. Adult. From material in the Princeton Museum.

Lower parts: White, with a blush of roseate tinge on the breast and the abdomen. This blush is evanescent and is very likely to fade in the skins, so as to disappear, even when kept from the light.

Bill: "Crimson" (Gibson). Tarsi: "Dull red" (Gibson). Toes: "Dull red" (Gibson). Iris: "Dark brown" (Gibson).

The adult breeding plumage of the female is not to be distinguished from that of the adult male.

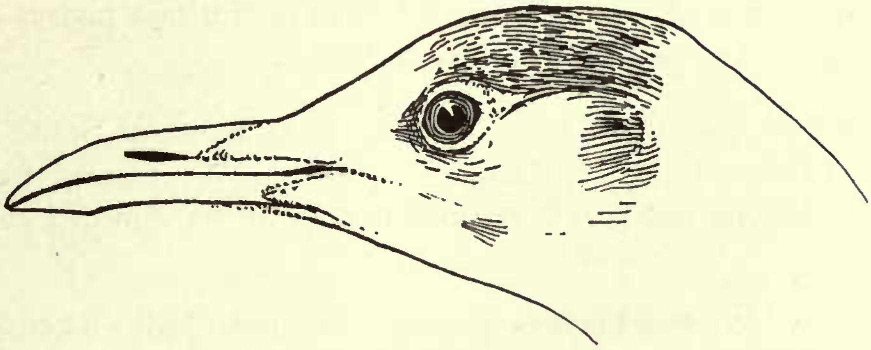
FIG. 122.



Larus maculipennis. Profile of head. From material in the American Museum. Natural size. Immature.

Adults in Winter.—Without the hood for a brief period only. No rosy blush on the lower parts. Otherwise much like breeding adults in color.

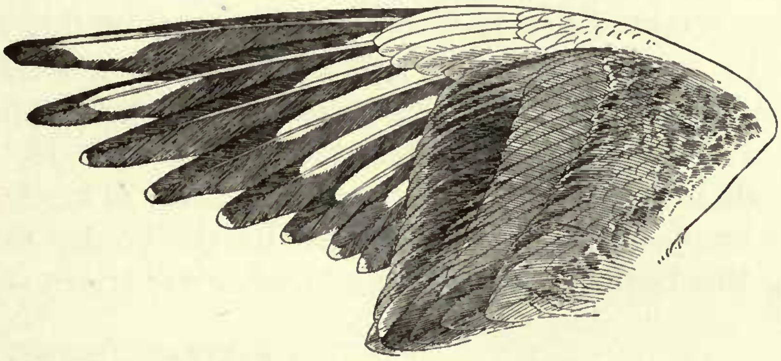
FIG. 123.



Larus maculipennis. Profile of head. From material in the American Museum. Natural size. Immature.

Young birds of the year, have the head white, with indistinct greyish brown on the occiput and in the auricular region. The mantle and upper wing coverts grey with brownish mottling. The five outer primaries sooty brown terminally and on their inner webs, with greyish white indications of the ultimate quill pattern on the two first; the other quills with whitish bases, and generally in pattern like the adult, but with the proportion of greyish black greater. The secondaries have ashy brown centers. There is a greyish black terminal band on the tail. At a later age the decorations on the three outer quills become more defined. (See

FIG. 124.



Larus maculipennis. Wing. ⅓ natural size. Immature. From material in the American Museum.

cut 124.) Immature birds are similar to young of the year, but the mantle is not mottled, and there is no mottling on the upper wing coverts. The decorations on the primaries increasingly white.

The *size* of this bird in connection with the *pale grey under wing coverts*, will always serve to distinguish it in its various phases of immature dress from its closest allies in this group.

Geographical Range.—South America, from about 9° South Latitude, on the East Coast, to South Patagonia. On the West Coast from about 50° South Latitude northward to probably about 30° South Latitude.

This gull, which has been frequently confounded with its close ally *S. glaucodes*, especially in immature plumage, has been found generally both on the coast and the interior of Patagonia. It was not obtained, however, by the Expeditions of Princeton University, and the series of skins in the British Museum of Natural History has been examined as a basis for the above diagnoses. The birds are said to be resident and to breed in the vicinity of Buenos Ayres, in November. Other references to its breeding season are given in the literature cited.

The British Museum has received two examples of this species from Valle Lago Blanco del Chubut, collected by Mr. J. Koslowsky, one of which is an adult male and has the head, sides of face, chin and throat brown. This specimen was obtained on September 16, 1899. The second example is an immature male with the crown of head, sides of face and throat white—only a trace of brown on the hinder margin of the ear-coverts—this bird was procured on October 24, 1901.

BUENOS AYRES, August 21, 1870.

"People in Buenos Ayres are as familiar with the Gaviota (*Larus cirrhocephalus*) as with the domestic poultry about their houses. It is one of the trio of our commonest species, the other two being the *Teru* and the *Chimango*. But these two are exclusively land birds, and to make their acquaintance it is also necessary to go a few miles out of a great crowded city. Not so with the Gaviota, whose white graceful form is not more familiar to the gaucho dwelling far off on the inland plains than to the sailors in every ship that navigates the river Plata, or to the townsmen, who may know it well without ever having left the city's pavement.

"In October these birds congregate in vast numbers in their breeding places, which are marshes covered with some aquatic plant, usually the loose growing *junco*. These reeds are much bent and broken down by Gulls, and are used as material for their nests, which are placed on the water close together. The female lays four oblong eggs, large for the bird, obtusely pointed, of a pale clay colour, thickly spotted at the large end with dull black.

"Every morning, at break of day, the Gulls rise up from their nests and hover over the marsh, uttering loud cries and producing a noise that may be heard distinctly two or three miles away. The eggs are excellent eating, resembling those of the Plover in delicacy of flavour, as well as in the lustrous pearl colour which the white assumes when boiled. From the circumstances of such large numbers of Gulls laying their eggs near together, it is a very easy task to get them; so that when the plains adjacent to their favourite spots become settled, they have but little chance of rearing their young, as the boys in the neighbourhood ride in and gather them every morning. The Gulls, however, are so tenacious of their breeding-places that they continue to resort to them every summer to lay, and only abandon them after several years' persecution, or, as often happens, on the marsh drying up. But notwithstanding such quantities of their eggs are taken every year, the Gulls do not seem to diminish in numbers. The abundance of their food in the settled districts favours them greatly in their 'struggle for existence.'

"The young birds are of a pale grey colour mottled with dull brown, and have a whining, querulous note. The plumage becomes gradually lighter through the autumn, winter and spring; but it must be a year at least before they are perfectly like the adults in the fine ash-blue of the wings, and in the white bosom with its lovely perceptible blush. It is now ten months since the young were fledged, and yet, in a flock, an observer at a hundred yards distance can easily distinguish them from the old birds.

"So soon as the young birds are able to fly, the breeding-place is forsaken, the whole concourse leaving in a body, or scattering in all directions over the surrounding country; and until the following summer, the movements of the birds depend altogether on food and water. As I mentioned in my last letter, in seasons of drought they disappear totally, and when Grasshoppers are very abundant appear in countless multitudes.

Drought and Grasshoppers unfortunately often come together, so that the Gulls are not so useful as they would otherwise be. In dry summers, when the insects are abundant, it is common to hear people wish for rain, that the Gulls might come and devour the Locusts. Apparently Gulls have been useful to man in the same way on the western plains of North America.

"The Gulls congregate in great numbers about ploughed grounds, filling the new-made furrow till it appears like a white line, hovering in a cloud over the ploughman's head, and following at his heels, fighting, screaming, buffeting, in a compact crowd. When feeding they invariably keep up a great noise and screaming. Wilson's expression in describing a northern species, that its cry 'is like the excessive laugh of a negro,' is also descriptive of the language of our bird. Its peculiar cry is lengthened and inflected a thousand ways, and interspersed with numerous short notes like excited exclamations. When their hunger is satisfied they fly to the nearest water, where they bathe, drink and preen their feathers. Their ablutions over (in which they appear to take great delight), they retire to some open spot in the neighbourhood abounding in short green grass. Here they sit close together with their bills to the wind; in still weather they also all look one way; and the observer will watch the flock in vain to find one individual out of this beautiful order. It is remarkable that they do not stand up to take flight, but rise in the air directly from a sitting posture. Usually they flap their wings twice or thrice before the body is raised from the ground.

"In some seasons in August and September, after a period of rainy warm weather, the larvæ of our Great-horned Beetle rise to the surface, throwing up little mounds of earth as Moles do; often they are so numerous as to give the plains, where the grass is very closely cropped, the appearance of being covered with mud. These insects afford a rich harvest to the *Teru-teru* (*Vanellus cayennensis*), which in such plentiful seasons are to be seen all day diligently running about, probing and dislodging them from under the fresh hillocks. The Gulls, not having been endowed with a probing bill, avail themselves of their superior cunning and violence to rob the *Terus.* I have often watched their proceedings for hours with the greatest interest. Many hundred *Terus* are perhaps visible running busily about the plain on all sides; near each one a Gull is quietly standing regarding his intended dupe with the closest attention.

The instant a great white larva is extracted, the Gull darts with such sudden fury to seize it, that the *Teru* is forced to take wing, and a violent chase ensues. The depredator follows close upon the Plover in all his turns, screaming all the time, until the *Teru*, frightened or tired out, drops the prize, and slopes towards the earth with a disappointed cry; instantly the pursuer's flight is checked, he hovers a moment, watching the worm fall, then straight and suddenly drops himself after it, swallows it with customary greediness, and hastens after the *Teru* to resume his watch.

"Many Gulls constantly hover about the *Estancias* to feed on the garbage that is usually found in abundance about cattle-breeding establishments. When a cow is slaughtered they collect in great numbers, and quarrel with the domestic fowls over the offal. They are also faithful attendants at the shepherd's hut; and if a dead lamb remains in the fold when the flock goes to pasture, they regale on its carcass in company with the *Chimango*. Numbers of them are constantly seen soaring over the low shores of the river, and, when the tide goes out, quarrel on the sands over dead fish, stranded fry, or whatever animal refuse may have been left.

"The slaughter-grounds adjacent to the city are also haunted by hosts of these neat and beautiful scavengers. Here numbers may be seen hovering overhead, and mingling their excited cries with the bellowing of thousands of wild cattle and the shouts of men at their rough work — at intervals, wherever a little space is afforded, dropping themselves on to the ground reeking with clotted blood and entrails, greedily snatching up whatever morsels they can on the instant, and yet getting no speck or stain on their delicate dress of lily white and ethereal blue.

"It is only when their food is very abundant that the Gulls move in great bodies; at other times they are seen singly or in small parties; but at night they often congregate in myriads in some large pool, where they will sometimes keep up a great screaming until morning.

"Their curiosity or anger seems greatly excited by the appearance of a person on foot on the open plains; no sooner has the Gull spied him, than he sweeps toward him with a rapid flight, uttering loud indignant screams, that invariably attract all its fellows within hearing. These all pass and repass, hovering over the pedestrian's head, screaming all the time as if highly incensed, and finally retire, joining their voices in a sort of chorus, and waving their wings upward in a very singular fashion; but often, when they are almost out of sight, they suddenly wheel about and hurry back with fresh zeal to go through the whole annoying performance again. Their flight being so serene at such times, it is very easy to shoot them. Many persons, however, and particularly English residents, have a squeamish repugnance against eating their flesh. But the flavour of birds does not seem to depend altogether on their peculiar food; two species are sometimes equally good that feed very differently. The Burrowing Parrot (*Conurus patachonicus*) is very bitter in taste, and yet feeds on the same seeds as the Partridge and wild Pigeon; the Glossy Ibis eats the same food as the most delicious-flavoured Snipes, and yet, when cooked, its fat emits a sickening smell that renders it unfit for human food. Those who have eaten this Gull have found it rich and finely flavoured, without any taint or rankness.

"The Gulls seem everywhere preëminent among the feathered race for the singular beauty of their flight. Our bird forms no exception, but all its aerial movements are characterized with the same grace and buoyancy that have been observed in the allied species in other continents. On a still, hot day they love to soar to a vast height, and at such times appear like diminutive white specks on the sky. In fair weather their flight is always placid, a large body of them seen at a distance appearing to travel with the serene motion of a cloud.

"When near, it is pleasing to see the wonderful precision with which each bird keeps its relative place in the flock. But it is in a high wind the Gull's flight is particularly interesting; casually observed it seems altogether wild and irregular. The bird toils onward, alternately turning the upper and under surface of its wings, now struck motionless in mid-air, and again sweeping onward with redoubled velocity, now dropping downward until it nears the surface, and soaring anon toward the sky, apparently without an effort of its own, but borne aloft by the resistless violence of the wind." (Hudson, P. Z. S. 1871, pp. 4–7.)

"Inconceivable numbers of birds are, no doubt, continually passing over us unseen. It was once a matter of wonder to me that flocks of Swans should almost always appear flying past after a shower, even when none had been visible for a long time before, and when they must have come from great distances. But the simple reason soon occurred to me, that after rain a Swan may be visible at a vastly greater distance than during fair weather, the sun shining on its snow-white plumage against the dark background of a cloud rendering it very conspicuous. The fact of Swans being seen almost always after a rain is only a proof that they are almost always passing. Whenever we are visited by a great dust-storm, myriads of Gulls appear flying before it; this is invariably the case even when not a Gull has been visible for months. A dust-storm is always preceded by long drought, so that from the water courses being all dry the Gulls could not well have subsisted in the region over which it passes. Yet in seasons of drought Gulls must be incessantly passing over us, visible only when driven together and forced towards the earth by the violence of the storm. The bird I allude to is the Black-headed Gull (*Larus cirrhocephalus*). In seasons when Grasshoppers abound very much, flocks of these birds also appear, often in such multitudes as to free entire districts from the devastating swarms of the hated insects. It is a fine sight, and a welcome as well, to see a flight of these birds settle on the afflicted district; at such times their mode of proceeding is often so regular, that a body of them well deserves the appellation of 'an army of birds.' They come down with a swift graceful flight, and settle on the earth with loud joyful cries, but do not abandon when the work of devouring has begun the order in which the flock was disposed. It often presents a front of several thousand feet, with a breadth of but sixty or eighty; all along this line of battle the excited cries of the innumerable birds produce a loud, incessant noise. Every bird is incessantly on the move — some skimming along the ground with half expanded wing, others pursuing the fugitives through the air; and all the time the hindmost birds are flying over the flock and alighting in the front ranks; so that the whole body is steadily advancing, and leaving the earth over which it passes free from the pest. The Black-headed Gull is one of our most common birds, and has many very interesting habits; I hope before long to make it the subject of another letter." (Hudson, P. Z. S. 1870, p. 802.)

At a meeting of the Zoological Society of London, 16 June, 1891, "Mr. Howard Saunders exhibited and made remarks on some specimens of eggs of the Spot-winged Gull (*Larus maculipennis*) and Trudeau's Tern (*Sterna trudeaui*), from the province of Buenos Ayres, obtained by Mr. Ernest Gibson, F. Z. S., and believed to be exhibited for the first time. The eggs of the former bird were, as might be expected, similar in character to those of other marsh-breeding brown-capped Gulls. The eggs of *Sterna trudeaui* were intermediate in their shape and pattern between those of the coast breeding Terns (*Sterna*) and those of the marsh Terns (*Hydrochelidon*). The nests of this Tern were stated to be placed in the swamps, amongst those of the Gull above mentioned." From the Proceedings of the Zoological Society of London, 1891, page 373.

"On the 2nd and 3rd October there were some adults of this Gull in Montevideo Bay, though birds in winter and immature dress were far more abundant. They remind one of the Black-headed Gull. In autumn they appeared in the camp. On the 20th April I saw two close to the estancia, and from that time they might often be seen about the camp, sometimes sitting on the carcass of a sheep or cow from which the hide had been taken. On 20th May I shot an adult with a lovely rosy flush on its breast. A few days after there were a great many about the estancia. The cry resembles that of our English species." (O. V. Alpin, on Birds Uruguay, Ibis, p. 211, 1894.)

LARUS GLAUCODES Meyen.

Larus ridibundus, King (nec. Linn.) Zool. Journ. IV. p. 104 (1828: Straits of Magellan).

Larus glaucodes, Meyen, Nov. Act. Acad. Cæs. Leop. XVI. p. 115, pl. 24 (1834); id. Beitr. Zool. p. 239, pl. 34 (1834: Chile); Cass. U. S. Astr. Exp. II. p. 204 (1855: coast of Chile); Burm. La Plata Reis. II. p. 519, note (1861); Phil. & Landb. Cat. Av. Chil. p. 48 (1868: Common on the coast of Chile); Scl. & Salv. P. Z. S. 1871, p. 578 (Falkland Is.: Patagonia: Chile); Saunders, P. Z. S. 1877, p. 799 (Straits of Magellan); id. 1878, p. 203; id. Voy. Chall. Birds, p. 138 (1880: Messier Channel, Magellan Territory); Sharpe, P. Z. S. 1881, p. 16 (Gregory Bay); Burm. Ann. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: Falkland Islands); Ridgw. Proc. U. S. Nat. Mus. XII. p. 139 (1889: Port Otway); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 181 (1891: Tierra del Fuego: Sloggett Bay: Straits of Magellan: Santa Cruz: Falkland Islands); James, New List Chil. B. p. 12 (1892); Saunders, Cat. Bds. Brit. Mus. XXV. p. 203 (1896: Egg Harbour, S. E. Patagonia); Schalow, Zool. Jahrb. Suppl. IV. p. 656 (1898: Tumbes, June: Talcahuano: Lago Llanquihue); Sharpe, Hand-List, Bds. I. p. 140 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 630 (1900: Punta Arenas, May: Rio Pescado, May); Martens Hamb. Magalh. Sammelr. Vög. p. 17 (1900: South Patagonia); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 208 (1901).

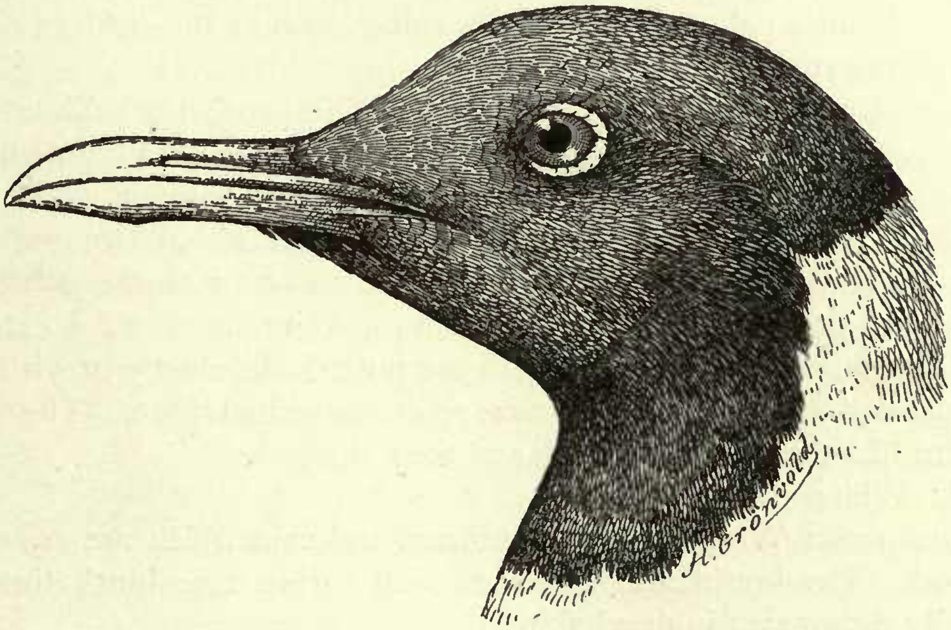
Xema (*Chroicocephalus*) *cirrocephalum*, Gould, Voy. "Beagle," Birds, p. 142 (1841: Straits of Magellan); Fraser, P. Z. S. 1843, p. 119 (Chile).

Xema cirrhocephala, Gray (nec. Vieill.), List B. Brit. Mus. Part III. p. 173 (1844: Falkland Islands and Straits of Magellan).

Larus cirrhocephalus, Des Murs. (nec. Vieill.), in Gay's Hist. Chil. Zool. I. p. 482 (1847); Pelz. Reis. Novara, Vög. p. 151 (1865: Chile, breeding); Sharpe, P. Z. S. 1881, p. 16 (Talcahuano, September).

Larus albipennis, Peale, U. S. Expl. Exped. p. 288 (1848: Chile); Cass. t. c. p. 379 (1858: coast of Chile).

FIG. 125.



Larus glaucodes. Adult male. Natural size. From material in British Museum.

Chroicocephalus glaucotes, Bruch. J. f. O. 1853, p. 105 (Chile) id.; 1855, p. 291; Licht. Nomencl. Av. Mus. Berol. p. 98 (1854).

Gavia roseiventris, Gould, P. Z. S. 1859, p. 97 (Falkland Islands, breeding).

Larus roseiventris, Scl. P. Z. S. 1860, p. 391 (Falkland Islands); Abbott, Ibis, 1861, p. 166 (loc. cit.).

GENERAL DESCRIPTION.

Size.—Adult male (breeding). Total length, about 14 inches.

Wing, 11 inches.

Tail, 4.8 inches.

Culmen, 1.7 inches.

Tarsus, 1.75 inches.

Color.—Adult (breeding). General color. Above pale cold grey; with a deep brown hood, below, except the region covered by the hood, white.

Head: With a deep brown hood, darkest on the nape and throat; a white circle about the eye, broken in front.

Neck: White, except the portion over which the hood extends.

Back: Mantle pale cold grey; this color shading into white or almost white on the rump and upper tail coverts.

Wing: Upper coverts pale cold grey. The primaries *without subterminal bars.* (This characteristic and the smaller size readily distinguish *L. glaucodes* from *L. maculipennis* in the breeding plumage.) First primary, with a pure white tip extending down for about two and a half inches. Below this both webs are black *reaching to* the *white* shaft. Second and third primaries, with white tips, white outer webs extending well down on the feathers, and with the inner webs chiefly greyish black, but separated from the shafts by a conspicuous white region. The secondaries are like the mantle but paler at their tips.

Tail: White.

Lower parts: White, except the throat and chin which are covered by the hood. The breast and abdomen with a deep rose blush tint which generally disappears in dried skins.

Bill: Crimson. Tarsi: Dull red. Feet: Toes dull red, the webs a little lighter. Iris: Dark hazel brown.

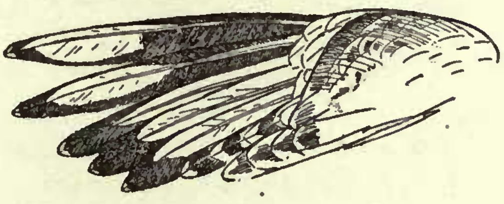
Adults in winter, lack the hood for a brief period, and the rosy tinge is faint if not absent. Otherwise similar to adults breeding in plumage.

Nestlings are "cinnamon buff, mottled with brownish black on the upper surface; bill, tarsi and toes yellowish brown." (Saunders.)

Fledglings are "chiefly pale umber-brown above, and paler below; the grey of the mantle and wings showing through the brown half-down." (Saunders.)

Young, first flight, have the head and mantle chiefly cinnamon-buff and the tail white with a terminal band (half an inch wide) of dusky brown. The shafts of most of the primaries are *white.* The three outer ones in pattern as shown in the figure (No. 128, p. 214). The rest have an increasing amount of the dark ground color on their webs, the inner ones being wholly grey.

FIG. 126.

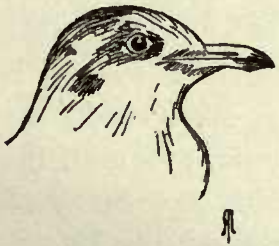


Larus glaucodes. Female. Immature. P. U. O. C. 7909. About ¼ natural size.

The secondaries are grey with dusky brownish centers. The under wing coverts are *pale, pearly grey.*

Immature birds of the year. (♀, No. 7909 P. U. O. C. near Coy Inlet, Patagonia, November 6, 1896). With white head, dusky on the occiput and about the auriculars, assuming the grey immaculate mantle. The primaries as in Fig. 126. The secondaries pale grey with large areas of dusky brown near their ends. Upper wing coverts chiefly grey, with dusky brown on each side of their shafts, and a strong shading of buffy at their ends and margins. Tail white, with an irregular amount of deep, dusky brown near the end of each feather; together these brown regions form a subterminal band. Below white, *no blush of pink.* A few dusky feathers indicate the coming hood on the throat. Bill reddish yellow. Feet and legs yellowish brown. Another bird of the year (♀, 7910 P. U. O. C., Cape Fairweather, Patagonia, 7 February, 1898) appears much like an adult in winter plumage. The back of the head shows a strong shading of buffy brown, which also appears on the auriculars. There is a dusky area just in front of each eye. The wing formula, as shown in Fig. 128, and the large amount of brown and buffy markings on the mantle clearly indicate the age of the bird. The secondaries are, however, chiefly grey, as are the upper wing coverts, and the under wing coverts

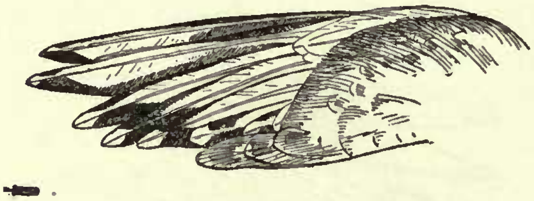
FIG. 127.



Larus glaucodes. Garrett collection. Female. Immature P. U. O. C. 7910. About ⅓ natural size.

pale, pearly grey. The two middle tail feathers are immaculate white, as are the two outer ones on each side. The rest have subterminal areas of dusky brown. The feet and legs are pale brownish flesh color. The bill dull flesh color, darkening at the tip. The lower parts are pure white. This bird is in fresh unworn feather of singularly fine texture. I am obliged to Mr. Howard Saunders, of London, for confirming my identification of these two specimens of *Larus glaucodes.*

FIG. 128.



Larus glaucodes. Female. Immature P. U. O. C. 7910. About ¼ natural size.

Geographical Range. — Straits of Magellan, Southern Patagonia, Tierra del Fuego, the Falkland Islands, and north on the Atlantic Coast to about 9° South Latitude. On the Pacific Coast north to about Coquimbo.

In view of the several diagnoses given it should not be difficult to identify this Gull in its many phases. However, Mr. Saunders writes: "It must be admitted that there is often considerable difficulty in distinguishing between the young of this species and of *L. maculipennis.* The easiest test is the larger proportion of white in the former, especially on the third quill, in which the black of the innner web is quite detached from the shaft; whereas in young *L. maculipennis* the black reaches the shaft till the bird is a year older. As already stated, the latter species is a trifle the larger." From Cat. Bds. Brit. Mus. XXV. p. 206 (1896).

The naturalists of the Princeton Expeditions to Patagonia, procured the two specimens described in detail above, and presumably saw many of these Gulls. For other phases of plumage the material in the British Museum of Natural History has been used as a basis for the above descriptions.

The two representatives of *L. glaucodes,* secured by the Princeton University Expeditions to Patagonia, are here cited:

P. U. O. C. Num.	Sex.	Locality.	Date.	Collector.
7909	♀	Near Coy Inlet, Patag.	6 November, 1896.	J. B. Hatcher.
7910	♀	Cape Fairweather, Patag.	7 February, 1898.	A. E. Colburn.

"This species so closely resembles the *Xema ridibundum* Boiè, that Mr. Gould observes, he should have hardly ventured to have characterized it as distinct; but as M. Vieillot and Meyen have deemed this necessary, he adopts their view. I have compared a suite of specimens, which I procured from the Rio Plata, the coast of Patagonia, and the Straits of Magellan, with several specimens of the *Xema ridibundum;* the only difference which appears to me constant, is that the primaries of the *X. cirrocephalum*, in the adult winter plumage, both of male and female, are tipped with a white spot (a character common to some other species), whereas in the *X. ridibundum* the points are black. The beak of the latter species, especially the lower mandible, is also a little less strong, or high in proportion to its length. In the immature stage, I could perceive no difference whatever in the plumage of these birds. The proportional quantity of black and white in the primaries, given by Meyen as the essential character, varies in the different states of plumage. The specimens described by this author were procured from Chile. The soles of the feet of my specimens were coloured, deep 'reddish orange,' and the bill dull 'arterial blood-red' of Werner's nomenclature.

"In the plains south of Buenos Ayres I saw some of these birds far inland, and I was told that they bred in the marshes. It is well known that the black-headed gull (*Xema ridibundum*), which we have seen comes so near the *X. cirrocephalum*, frequents the inland marshes to breed. It appears to me a very interesting circumstance thus to find birds of two closely allied species preserving the same peculiarities of habits in Europe and in the wide plains of S. America. Near Buenos Ayres this gull as well as the *L. dominicanus* sometimes attends the slaughter-houses to pick up bits of meat." (Voy. "Beagle," Darwin, Birds, pp. 142–143.)

Larus dominicanus Lichtenstein.

Gabiota major, Azara, Apunt. III. p. 338 (1802).

Larus dominicanus, Licht. Verz. Doubl. p. 82 (1823: ex Azara); Darwin, Voy. "Beagle" Birds, p. 142 (1841: Buenos Ayres and Bahia Blanca); Fraser, P. Z. S. 1843, p. 119 (Chile); Hartl. Ind. Azara, p. 26 (1847); Des Murs in Gay's Hist. Chil. Zool. I. p. 480 (1847); Gould, P. Z. S. 1859, p. 97 (Falkland Islands); Scl. P. Z. S. 1860, p. 390 (Falklands); Abbott, Ibis, 1861, p. 165 (Falkland Islands, breeds in

Dec.); Phil. & Landb. Cat. Av. Chil. p. 47 (1868: Coast of Chile, common); Scl. & Salv. Ibis, 1868, p. 189 (Sandy Point); 1869, p. 284 (Halt Bay, April); Newton, Ibis, 1870, p. 503 (Elizabeth Island, Nov. eggs); Cunningh. Nat. Hist. Str. Magell., p. 222 (1871); Scl. & Salv. P. Z. S. 1871, p. 576 (Falkland Islands); iid. Nomencl. Av. Neotr. p. 148 (1873); Durnf. Ibis, 1876, p. 165 (Monte Video, Sept.); Saunders, P. Z. S. 1877, p. 799 (Straits of Magellan); Durnf. Ibis, 1877, p. 45 (Ninfas Point, Chupat Valley), p. 201 (Buenos Ayres); id. Ibis, 1878, p. 68 (Buenos Ayres), p. 405 (Lake Colgaupe: Tambo Point, Dec., breeding); Saunders, P. Z. S. 1878, p. 180; Gibson, Ibis, 1880, p. 163 (Cape San Antonio, Buenos Ayres); Saunders, Voy. Chall. II. Birds, p. 139 (1880: Nassau Harbour, Straits of Magellan, Jan.); Sharpe, P. Z. S. 1881, p. 17 (Tom Bay, April, March: Cockle Cove, Feb.: Valparaiso, Aug.: Peckett Harbour: Puerto Bueno, Feb.: Port Henry, Jan.); Doering, Expl. al Rio Negro, Zool. p. 57 (1882: Laguna Epecuen, Carhué, Puan y Salinas Chicas); Saunders, P. Z. S. 1882, p. 527 (Coquimbo); Barrows, Auk, I. p. 316 (1884: Lagunas at Puan and Carhué, March and April); Withington, Ibis, 1888, p. 472 (Lomas de Zamora, fairly plentiful); Scl. & Huds. Argent. Orn. II. p. 197 (1889); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 173 (1891: Tierra del Fuego: Orange Bay: New Year Sound: Rio Santa Cruz); James, New List Chil. B. p. 12 (1892); Holland, Ibis, 1892, p. 213 (Estancia Espartilla, Jan. to Aug., common); Lataste, Actes Soc. Sci. Chile, III. p. 122 (1893: Straits of Magellan); Scl. Ibis, 1894, pp. 495, 497; Saunders, Cat. Bds. Brit. Mus. XXV. p. 245 (1896: East Patagonia); Schalow, Zool. Jahrb. Suppl. IV. p. 657 (1898: Cavanche, July & Sept.: Coquimbo, Oct.: Feuerland, Jan.: Beagle Canal); Sharpe, Hand-List, Bds. I. p. 141 (1899); Carbajal, La Patagonia, part II. p. 280 (1900); Salvad. Ann. Mus. Genov. (2) XX. p. 629 (1900: Penguin Rookery Feb.: Port Cook, March: Punta Arenos, June: Santa Cruz, Jan., July); Martens, Hamb. Magalh. Sammelr. Vög. p. 17 (1900: Falkland Islands); Oates, Cat. Bds. Eggs. Brit. Mus. I, p. 212 (1901); Nicoll, Ibis, 1904, p. 46 (Straits of Magellan and Smythe's Channel).

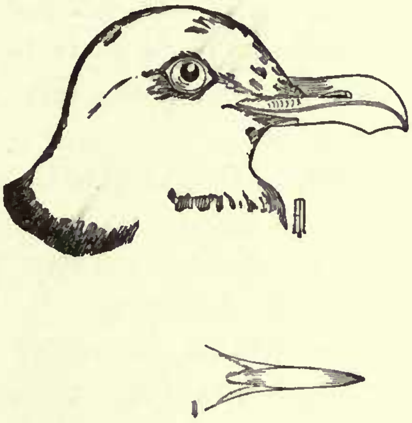
Larus fuscus, King (nec Linn.) Zool. Journ. IV. p. 103 (1828); id. Voy. Advent. & Beagle, I. p. 541 (1839: Straits of Magellan).

Dominicanus verreauxi, Bruch. J. f. O. 1855, p. 281 (Chile).

Clupeilarus verreauxi, Bp. Compt. Rend. xliii. p. 770 (1856: Chile).

Larus vociferus, Burm. La Plata Reis. II. p. 518 (1861: Buenos Ayres: Montevideo); C. Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: Coast of Patagonia and Falkland Islands).

FIG. 129.



Larus dominicanus. Adult. Profile of head. Bill from above. From specimens procured by the Princeton Expeditions. About ⅓ natural size.

GENERAL DESCRIPTION.

Size. — Adult male (breeding). Total length, about 23 inches.

Wing, 16.5 inches.

Tail, 7.1 inches.

Tarsus, 2.4 inches.

Culmen, 2.25 inches.

The female is appreciably smaller than the male.

Color. — Adult male (breeding). General color, white with a black or slaty black mantle and wings.

Head: Entirely white.

Neck: White.

Back: Mantle and lower back slaty black. Rump and upper tail coverts white.

Wing: In general color like the mantle. Upper wing coverts slaty black. The scapulars and all of the secondaries slaty black with broad white tips, which together form a conspicuous alar bar. The primaries are black, broadly tipped with white, and vary in decoration and amount of white with the age of the individual as follows: Very mature birds have the first *primary white for about two inches apically*, with only a hair line of black next to the shaft. The second *primary shows a white mirror*, *subapically*, which is most extensive on the inner web. Ordinary adults have the white apical region of the first primary modified to a subapical mirror; the second primary being decorated as in older birds. Still younger adult birds have *only the first primary decorated with a white mirror*, the *second primary being black with a broad white tip* like the third. In all of these phases, the third primary is black with a broad white tip. The fourth primary begins to show a greyish or white "wedge" on the inner web. This increases in extent until on the seventh primary it has joined the white tip, and the other inner primaries are white terminally and only slate color basally.

Tail: Pure white.

Under parts: Including under wing coverts pure white.

Bill: Lemon yellow, turning to orange and red at the angle of the gonys. Iris: Greyish white. Tarsi: Olive grey. Toes: Olive grey, with the webs inclined to yellow.

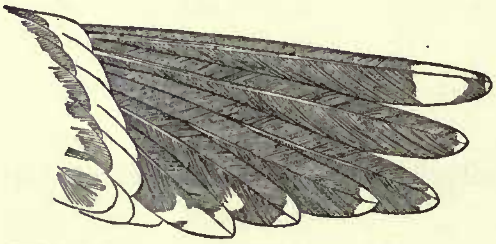
"Male ad.: Tom Bay, April 5, 1879. Iris clear grey; eyelids red; legs olive.

"Male juv.: Cockle Cove, February 14, 1879. Eyes black; bill black; legs dark grey.

"Male juv.: Tom Bay, March 8, 1879. Iris dark brown; eyelids black; bill black; legs grey.

"Female in changing plumage: Valparaiso, August 13, 1879. Bill grey with black tip; eyes dark; legs light grey; claws black.

FIG. 130.



Larus dominicanus. Wing pattern of ordinary adults.

"Female ad.: Peckett Harbour, Straits of Magellan, January 4, 1879. Bill yellow, the end of lower mandible red; eyelids red; eyes clear grey; legs greenish.

"Male juv.: Puerto Bueno, February 21, 1879. Iris dark brown, the lids black; feet grey.

"Puerto Bueno, February 20, 1879. Bill black; legs dark grey.

"Male: Port Henry, January 28, 1879. Eyelids red; irides grey; bill yellow, tip of lower mandible red; legs and feet olive-green; claws black." (Sharpe, P. Z. S. 1881, p. 17.)

The *adult female* is like the adult male in color.

Immature birds have the mantle and wings browner. The white on the first five primaries is much reduced if present at all. There is a more or less well defined dark brown subterminal band on the tail. Sometimes this is only indicated by a mottling of the darker color. The head and neck are streaked with greyish brown in a varying degree. The bill is duller and paler in color.

Young birds of the year (No. 7908, P. U. O. C. (no sex given), Rio Gallegos, Patagonia, 31 May, 1896) are mottled dark brown and grey above and streaked with dark brown on a greyish ground below. Both the upper and lower tail coverts are barred with dull brown. The rectrices are dull brown with greyish brown tips. The bill is dark horn-color, lighter at the tip. The legs and feet are brown and the webs pinkish brown.

These birds probably do not attain the first adult plumage until the fifth year, and the dark mantle first becomes indicated by some decided black spots or areas on the back. Gradually this color extends till the wings show it. Meantime the upper tail coverts become white and the bill paler yellow. In the next change the primaries have white tips. Later the subterminal mirrors begin to show, and with the first complete adult appearance, subapical mirrors are developed, as already described. Finally the old birds, beyond the seventh year probably, show the apical white end to the first primary.

Downy nestlings are dull stone-color with a faint buffish shading, and scattered brownish black spots about the head and duller mottling of a like character on the back. The under parts are greyish white and the feet and toes dull lead color.

Geographical Range.—South America from latitude 10° south to the Antarctic regions. The Falkland Islands, the South Georgia Islands, South Africa, both coasts, the Crozets and Kerguelen Islands, New Zealand and lands to the south.

The Black-backed Gull of the South Atlantic and regions cited is of common occurrence on the coast and in some parts of the interior of Patagonia. In appearance it closely resembles the Great Black-backed Gull, *L. marinus*, of the North Atlantic, but is very appreciably smaller. Difference in size should serve to distinguish the two in all phases of plumage, and the decorations of white on the two first primaries of adults of *L. marinus* are always much larger relatively than the same markings are in *L. dominicanus*.

The several specimens of *L. dominicanus* obtained by the Princeton Expeditions to Patagonia, and the material in the British Museum of Natural History have formed a basis for the description given.

A specimen of this species was collected by J. Koslowsky at Valle del Lago Blanco del Chubut, on September 18, 1899. It is a fully adult bird in breeding plumage.

Mr. Saunders, referring to the variation in size of *L. dominicanus*, writes: "The *female* is smaller and has a less robust bill; there is, however, much individual variation irrespective of sex. For example, there is as much difference between birds obtained on the Island of Kerguelen alone as there is between examples from all the rest of the area frequented by the species." (Cat. Bds. Brit. Mus. XXV. p. 248, 1896.)

In "Voyage of the Beagle, Zoology," Part III. Birds, page 142 (1841), Darwin writes of *Larus dominicanus*: "This Gull abounds in flocks on the Pampas, sometimes even as much as fifty and sixty miles inland. Near Buenos Ayres, and at Bahia Blanca, it attends the slaughtering-houses, and feeds, together with the Polybori and Cathartes, on the garbage and offal. The noise which it utters is very like that of the common English Gull (*Larus canus*, Linn.)."

Tom Bay, Straits of Magellan: "One fine day in April we noticed a great concourse of gulls and shags, attracted by a shoal of fish, in the pursuit of which they ventured unusually close to the ship. This gave us an opportunity of observing that the common brown gull of the channels, the female of *L. Dominicanus*, behaves towards the male bird in many respects like the skua. No sooner would one of the 'black-backed' (male) birds capture a fish, and rise from the surface, than he would be attacked by one of the brown birds, and chased vigorously about the harbour; the predatory bird not desisting from the pursuit until the coveted prize had been dropped by its rightful owner. This I noticed on more occasions than one. As a rule, however, the female was content to fish for herself. Several Dominican gulls in immature plumage were seen amongst the crowd, and were easily distinguished from the adults by the mottled brown plumage, and by the colour of the mandibles being green instead of orange, as in the males, and black as in the females. Now and then the whole flock of gulls and shags would rise on the wing, as they lost the run of the shoal of fish. They would then be directed to the new position of the shoal by the success of some straggling bird, when a general rush would be made to the new hunting ground. It was most amusing to witness the widely different fishing powers of the shags and gulls, and the consequently unequal competition in the struggle for food. The shag in flight, on observing a fish beneath him, at once checks himself by presenting the concave side of his wings to the direction in which he has been moving, and then, flapping legs foremost into the water, turns and dives; whereas the gull has first to settle himself carefully as he alights on the water, and has then to trust to the chance of some unsophisticated fish coming within reach of his bill. It was impossible to avoid noticing the mortified appearance of the poor gulls as they looked eagerly about, but yet caught only an odd fish, whilst their comrades, the shags, were enjoying abundant sport.

"It is odd that the silly gull manages at all to survive in the struggle for existence. Here is another instance of his incapacity. A piece of meat, weighing a few ounces, drifted astern of the ship one day, and for its possession a struggle took place between a Dominican gull and a brown hawk. The gull had picked up the meat, and was flying away with it in his bill, when he was pursued by the hawk—a much smaller bird—who made him drop it. Again the gull picked it up, and for a second time was compelled by the hawk to relinquish it. The latter now swooped down upon the tempting morsel, as it floated on the water, and seizing it with his claws, flew off rapidly into an adjoining thicket, to the edge of which he was followed by the disappointed gull." (Cop. Cruise, "Alert," 1883, pp. 60–61.)

The Common Brown Gull of the Channels referred to by Coppinger was, probably, one of the two species of *Megalestris* that frequent this region.

"Nests are built of grass and sea-weed, near the sea, and are generally wet within. Eggs are three in number, and in shape a pointed ovoid, approaching to pyramidal. The shell is rather stout, brittle, and composed of two distinct layers of about equal thickness. The external layer is coarsely granular in texture, roughly mammillated superficially, and of a dark olive-drab color, blotched by irregular spots of different tints, Vandyke-brown, sepia, slate color and brownish-yellow. The slaty markings are within the shell, the others on the surface. As in the case of *Buphagus*, those of the same nest are generally similar in marking, while those of different nests show considerable variety of hue. The internal layer of the shell is closer in texture, of a pale apple-green color, and shows under the lens innumerable small whitish trapezoidal columns set transversely to the surface, in a matrix of a pale-green homogeneous basis substance. The blotches are more closely aggregated at the large end of the egg than elsewhere, and vary in shade according to their situation, superficial or deep. Some specimens of these eggs are not distinguishable with certainty from those of northern Gulls—*Larus argentatus*, for example." (Natural History of Kerguelen Island, J. H. Kidder, M. D., Bull. No. 3, U. S. Nat. Mus., p. 10, 1876.)

H. N. Moseley, in "Notes by a Naturalist on the Challenger," page 212 (1879) writes: "Kerguelen's Land, January, 1874. The Gull (*Larus Dominicanus*) nests also on the open ground amongst grass tufts, and the birds breed in considerable flocks together, choosing often some dry place on the lower slopes of a hill-side. I saw two such places where there were a few nests with young and remains of many more. No regular nest is made. The young are brown coloured. The old birds make a great deal of noise when the young are carried off, but make no attempt to protect them. The brown color of the young is closely like that of the dead grass in which they lie, and under which they hide on approach of danger. The colour is protective to them; they are, certainly, very difficult to see amongst the grass."

"There were many in Montevideo Bay on the 2nd October and on subsequent occasions, both adult and young. The legs of the adult in life have a very yellow cast on the olive. On the 1st May, about sundown, I saw fourteen passing over Sta. Ana, low down, going south, and shortly after at least a hundred Gulls of the same size higher up. Cold S. W. winds about that time." (O. V. Alpin, on Birds Uruguay, Ibis, pp. 210-211, 1894.)

"Iris pale yellow; bill yellow, with red spot; eyelid red; tarsi and feet slate-grey, in the male washed with yellow.

"This Gull was abundant in the Straits of Magellan and Smythe's Channel. The males appeared to have larger bills than the females." (M. J. Nicoll, Orn. Jour. Voy. round World, Ibis, Jan. 1904, pp. 46–47.)

Genus LEUCOPHÆUS Bruch.

	TYPE.
Leucophæus, Bruch., J. f. O. 1853, p. 108; Saunders, Cat. Bds. Brit. Mus. XXV. p. 299 (1896); Sharpe, Hand-List Bds. I. p. 143 (1899)	*L. scoresbyi.*
Procellarus, Bp. Naum. 1854, p. 211	*L. scoresbyi.*
Epitelarus, Bp. Naum. 1854, p. 211	*L. scoresbyi.*

Geographical Range.—Southern South America, south to the Antarctic Land beyond Cape Horn. The Falkland Islands. The New South Shetland Islands.

LEUCOPHÆUS SCORESBYI (Traill).

Larus scoresbii, Traill, Mem. Wern. Soc. IV. p. 514 (1823); Scl. P. Z. S. 1860, p. 391 (Falkland Islands); Abbott, Ibis, 1861, p. 165 (Falkland Islands, breeding in Dec.); Schl. Mus. Pays Bas. VI. Lari p. 33 (1863); Pelz. Reis. Novara, Vög. p. 151 (1865: Island of Chiloe); Saunders, P. Z. S. 1878, p. 184; id. Jour. Linn. Soc. XIV. p. 397 (1878); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: S. Patagonia and Falkland Islands); Oust. Miss. Sci. Cap Horn, Oiseaux, p. 179, pl. 3 (1891: Santa Cruz: Gabble Island: Packsaddle Island: Orange Bay); James, New List Chil. B. p. 12 (1892); Scl. Ibis, 1894, pp. 495, 497.

Larus hæmatorhynchus, King. Zool. Journ. IV. p. 103 (1828); id. Voy. Advent. & Beagle, I. p. 541 (1839: Straits of Magellan); Darw. Voy. "Beagle," Birds, p. 142 (1841: Port St. Julian, Patagonia); Gray, List Bds. Brit. Mus. Part III. p. 170 (1844: Berkeley Sound, E. Falkland Is.); Des Murs in Gay's Hist. Chil. Zool. I. p. 381 (1847); Phil. & Landb. Cat. Av. Chil. p. 48 (1868: Chiloe).

Leucophæus hæmatorhynchus, Bruch. J. f. O. 1853, p. 108, 1855, p. 287.

Chroicocephalus hæmatorhynchus, Licht. Nomencl. Av. Mus. Berol. p. 98 (1854: Chile).

Leucophæus scoresbii, Bp. Consp. Av. II. p. 231 (1857); Scl. & Salv. P. Z. S. 1871, p. 579; iid. Nomencl. Av. Neotr. p. 148 (1873); Saunders, Cat. Bds. Brit. Mus. XXV. p. 299 (1896: East Coast of Patagonia, 45 S., Aug.); Martens. Hamb. Magalh. Sammelr. p. 17 (1900).

Leucophæus scoresbyi, Sharpe, Hand-List Bds. I. p. 143 (1899); Carbajal, La Patagonia, II. p. 280 (1900); Salvad. Ann. Mus. Genov. (2) XX. p. 629 (1900: Rio Pescado, May); Oates, Cat. Bds. Eggs, Brit. Mus. I. p. 222 (1901).

GENERAL DESCRIPTION.

Size.—Adult male (breeding). Total length, about 18 inches. Wing, 13.2 inches.

Tail, 6.0 inches.
Bill (culmen), 1.7 inches.
Bill (depth at angle), 0.6 inches.
Tarsus, 2.0 inches.
Female slightly smaller.

Color.—Adult male (breeding). General color lavender grey with black mantle and wings.

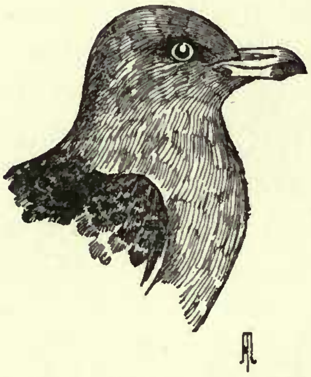
Head: Lavender grey.

Neck: Lavender grey.

Back: Mantle black; rump and upper-tail coverts pale grey.

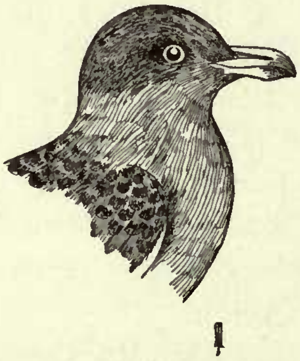
Wing: Black, with white decorations. Primaries black. The first primary wholly black, the second with a very small white tip. This terminal white increases on each primary and on the fifth a white mirror appears on the inner web. The rest of the primary quills have broad white tips, increasing in area inward. The secondaries are black and very broadly terminated with white. The scapulars are also black and terminate broadly with white. Upper wing coverts: Black. The under wing is wholly smoky in color.

FIG. 131.



Leucophæus scoresbyi. Profile of head. Adult male. From specimen in Princeton Museum. About ⅓ natural size.

FIG. 132.



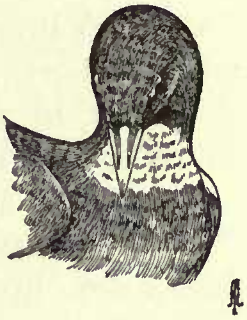
Leucophæus scoresbyi. Profile of head. Young of the year. Specimen n Princeton Museum. About ⅓ natural size.

Lower parts: Entirely lavender grey, rather paler than on the top of the head and back of the neck.

Tail: Pure white. Bill: Bright red, of a cherry shade. Iris: Pale yellow, orbital ring white (Saunders). Tarsi: Vermilion. Feet: Toes vermilion, *the hallux* joined to the *inner toe* by a *distinct web.*

Young of the year have the head dusky grey, the neck entirely brownish. The mantle is dark brown. The first five primaries are black, *without white tips*, the remainder much as in older birds. The secondaries are almost as broadly tipped with white as in adults. Upper tail coverts white with a faint grey tinge. Tail white with a broad subterminal black band. The lower parts are white, faintly tinged with grey up to the breast, which is brownish like the neck. The bill is deep yellow at the base, shading into dusky and becoming almost black anteriorly. The legs and feet are pale brown.

FIG. 133.



Leucophæus scoresbyi. Older bird of the year. About ⅓ natural size.

Older birds of the year are distinguished by a sooty head, in contrast to the neck which is grey. The mantle is much darker centrally and the band on the tail narrow and absent on the two outer rectrices which are nearly white. The under surface is pale grey.

Immature birds have a well *defined sooty hood* and are otherwise much like adults, though there is less white on the primaries.

Downy nestlings, cold slate grey closely and finely spotted above with dark umber and mottled below with the same color on a similar ground shade.

Geographical Range.—As given for the genus, this being the sole representative recognized.

This Gull was not obtained by the Princeton Expeditions to Patagonia and the descriptions here given are based on the material in the British Museum of Natural History and also on specimens obtained from the Museo de La Plata. The bird is said to be quite localized in distribution even in the regions where it occurs. In habit it is somewhat parasitic and decidedly predatory, feeding on the eggs and young of other Gulls and birds which breed in communities; and during the non-breeding season of the year shell fish of various kinds are largely consumed by these birds which do not subsist to a great degree on fish.

Family STERCORARIIDÆ.

Saunders, Cat. Bds. Brit. Mus. XXV. p. 314 (1896).
Sharpe, Hand-List Bds. I. p. 143 (1899).

Genus MEGALESTRIS Bonaparte.

	TYPE.
Catharacta Brünn. Orn. Bor. p. 32 (1764)	*M. catarrhactes.*
Lestris, Illiger, Prodr. p. 272 (1811: part).	
Cataractes, Fleming, Phil. Zool. p. 263 (1822) . . .	*M. catarrhactes.*
Stercorarius, Vieill, N. Dict. d'Hist. Nat. XXIII. p. 154 . . (1819) et auct. (part.).	
Catarracta, Bp. Naum. 1854, p. 210	*M. antarctica.*
Megalestris, Bp. Cat. Parzudaki, p. 11 (1856); Saunders, Cat. Bds. Brit. Mus. XXV. p. 314 (1896); Sharpe, Hand-List Bds. I. p. 143 (1899) . . .	*M. catarrhactes.*
Buphagus, Coues, Pro. Acad. Nat. Sci. Phila. 1863, p. 125, ex. Moehring (1752)	*M. catarrhactes.*

Geographical Range.—North and South Atlantic Ocean, the Southern Indian Ocean, the Antarctic regions, the seas about New Zealand.

MEGALESTRIS CHILENSIS (Bonaparte).

Stercorarius antarcticus, Des Murs in Gay's Hist. Chil. Zool. I. p. 481 (1847); Phil. & Landb. Cat. Av. Chil. p. 47 (1868).

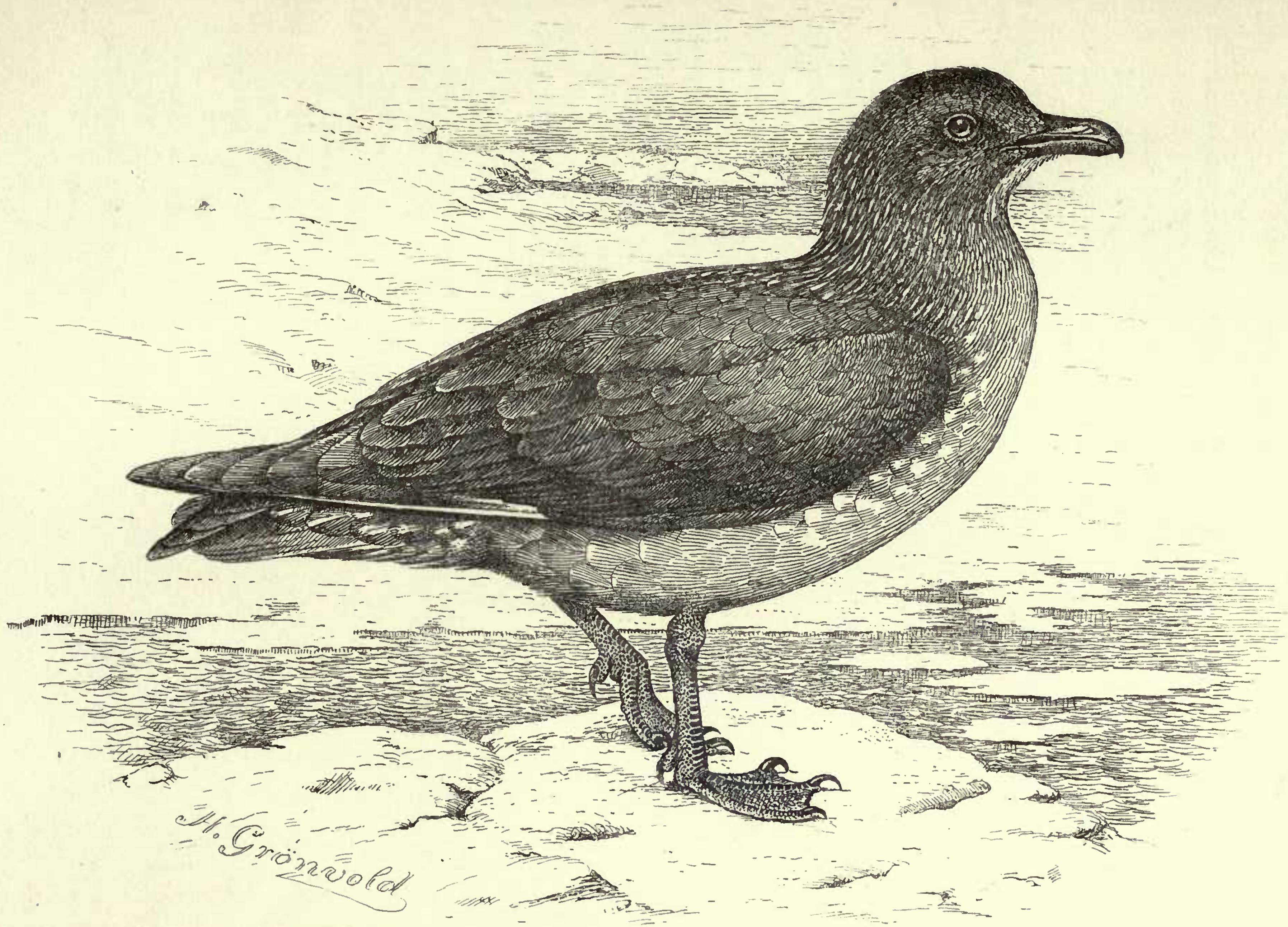
Catarracta catarractes, Licht. Nomencl. Av. Mus. Berol. p. 99 (1854: Chile).

Lestris antarctica, Scl. & Salv. (nec Less), Ibis, 1869, p. 284 (Sta. Magdalena, Straits of Magellan).

Stercorarius chilensis, Saunders, P. Z. S. 1876, p. 323, pl. XXIV. 1877 p. 800 (Straits of Magellan); id. Voy Chall. II. p. 140 (1880: Elizabeth Isl.); Sharpe, P. Z. S. 1881, p. 17 (Talcahuano, Sept.: Straits of Magellan); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 172, 332 (1891: Santa Cruz, Patagonia, Nov.).

Megalestris chilensis, Saunders, Cat. Bds. Brit. Mus. XX. p. 318 (1896); Schalow, Zool. Jahrb. Suppl. IV. p. 655 (1898; Coquimbo, Oct.: Sao

Fig. 134.



Megalestris chilensis
About ⅓ natural size

Huivantazgo, Feuerland, Jan.: Sene Almirantazgo, Jan.); Sharpe, Hand List Bds. I. p. 143 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 629 (1900: Santa Cruz, Patagonia); Martens, Hamb. Magalh. Sammelr. Vög. p. 17 (1900); Oates, Cat. Bds. Eggs. Brit. Mus. I, p. 225 (1901). Nicoll, Ibis, 1904, p. 47 (Port Dixon and Gray's Harbor).

Lestris antarcticus, var. b. *chilensis*, Bp. Consp. Av. II. p. 207 (1857).

GENERAL DESCRIPTION.

Size.—Total length, about 21 inches.

Wing, 15.5 inches.

Tail, 6.5 inches.

Culmen, 2.3 inches.

Tarsus, 2.75 inches.

Color.—Adult (unworn plumage). General color, upper parts brown with chestnut markings on mantle and whitish striping on the neck. Lower parts reddish chestnut brown.

Head: Generally brown, deepening to dark brown on forehead, crown and occiput.

Neck: Above, brown striped with narrow white or greyish streaks, and with chestnut mottling. Under neck including chin and throat warm chestnut, rusty or deep cinnamon.

Back: Mantle brown, the feathers streaked medianly with rusty red chestnut; the rump and upper tail coverts chiefly chestnut.

Wings: Chiefly brown, dark in shade and with suggestions of chestnut on the upper wing coverts. The quills are dark brown; four of the outer ones with white bases which show most conspicuously from below. *Under wing coverts chiefly chestnut.*

Tail: Dark brown.

Lower parts, chin, throat, breast and abdomen reddish chestnut or deep rusty cinnamon. The under tail coverts chestnut with dark brown mottling. Flanks and sides shaded with dark brown. Bill: Dark reddish umber. Tarsi: Black, frequently mottled with yellowish. Toes: Black; webs dusky brown. Iris: Dark hazel brown.

"Male: Straits of Magellan, December, 1879. Bill, legs and feet black; eyes brown.

"Female: Talcahuano, September, 1879. Eyes dark brown; legs and feet black." (Sharpe, P. Z. S. 1881, p. 17.)

There appears to be no difference in the color of the sexes; the plumage is frequently dull, however, from wear.

Immature birds are less ruddy above and the areas of chestnut are not so conspicuous, but *this color* is always a strong characteristic.

Young birds of the year are similar to the immature, but the chestnut decorations on the mantle are confined to the edges of the feathers, there being no central chestnut streaking.

"Bill slate-colour; iris black; tarsi and toes slate, with a few lavender streaks." (S. F. Rowland.)

Geographical Range.—Coast of South America, Atlantic coast from Rio de Janeiro southward to the Straits of Magellan and throughout the Straits. Pacific coast from the Straits of Magellan north to Callao, Peru.

This Skua was not obtained by the Princeton Expeditions to Patagonia. The data for descriptions is based on the material in the British Museum of Natural History and in the Philadelphia Academy of Natural Sciences.

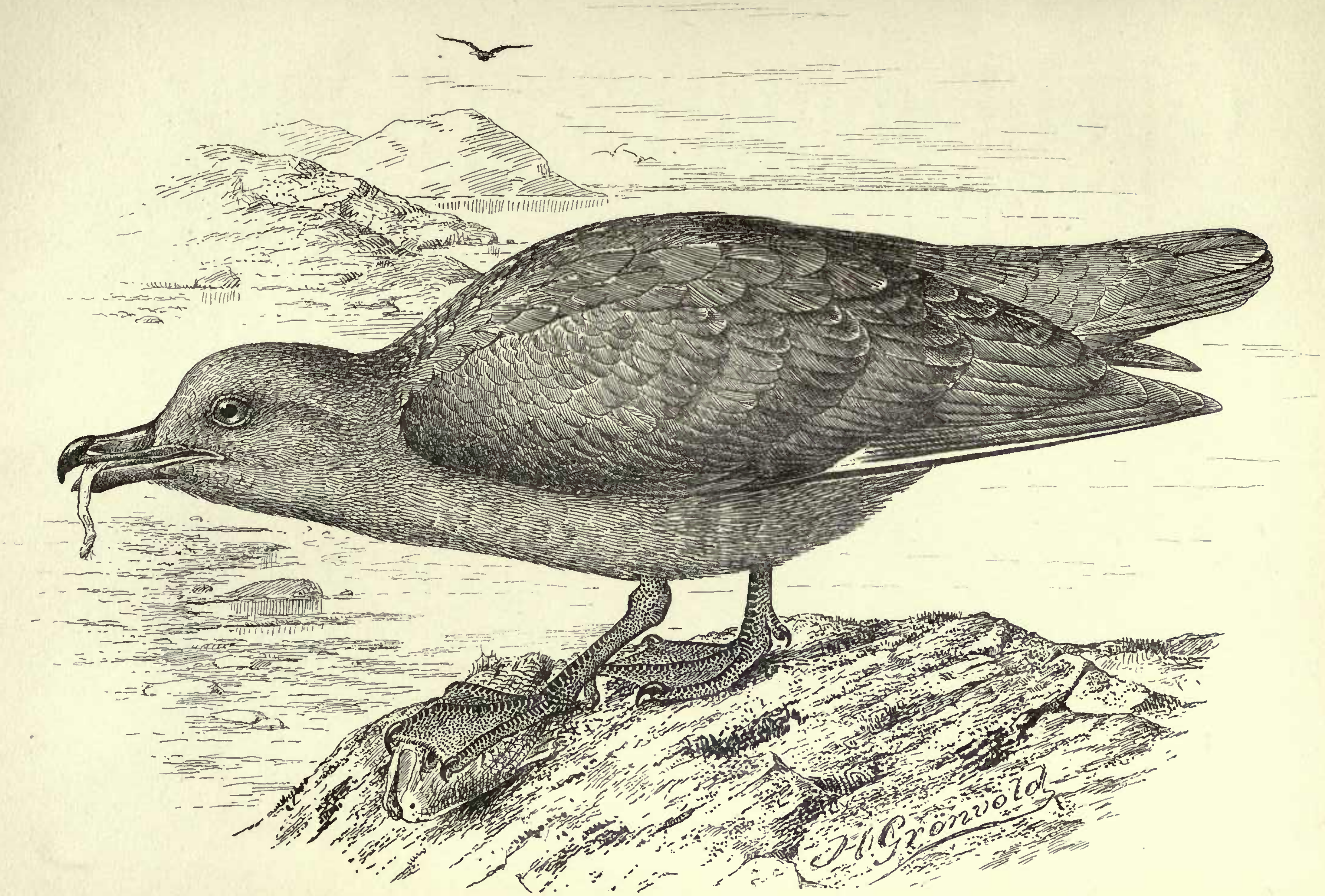
The habits of the Chilian Skua do not appear to differ radically from their congeners of the North Atlantic. Oates cites a single egg taken at Sen Sive Island, Santa Cruz River, Patagonia, on December 3. He speaks of it "as inseparable from many of the eggs of the Great Skua." *M. catarrhastes* (Linn.). (Op. cit. ante.)

"This fine Skua was not uncommon in the Straits of Magellan and Smythe's Channel. Several times four or five birds followed us into our anchorage. They were very wary, and I found that the best way to procure them was to tie a dead Cormorant to a long string and let it drift away from the ship. A Skua would soon discover it and come down to tear it to pieces; when thus engaged it might be approached without difficulty." (M. J. Nicoll, Orn. Jour. Voy. round World, Ibis, Jan. 1904, p. 47.)

MEGALESTRIS ANTARCTICA (Lesson).

Port Egmont Hen, Hawksw. Voy. II. p. 283 (1769: Falkland Islands).
Lestris catarrhactes, Quoy & Gaim. Voy. Uranie, Zool. p. 137, pl. 38 (1824: Falklands).

Fig. 135.



Megalestris antarctica
About ⅓ natural size

Lestris antarticus, Less. Traite d'Orn. p. 616 (1831: Des iles Malouines); Scl. P. Z. S. 1860, p. 390 (Falkland Islands); Abbott, Ibis, 1861, p. 165 (Falkland Islands, breeds in Dec.); Scl. & Salv. P. Z. S. 1871, p. 579; iid. Nomencl. Av. Neotr. p. 148 (1873: Falkland Islands); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 248 (1888: Straits of Magellan and Falkland Islands).

Megalestris antarctica, Gould, P. Z. S. 1859, p. 98 (Falkland Islands, eggs); Saunders, Cat. Bds. Brit. Mus. XXV, p. 319 (1896: Falkland Islands); Sharpe, Hand-List Bds. I. p. 144 (1899); Carbajal, La Patagonia, part II. p. 280 (1900); Martens, Hamb. Magalh. Sammelr. Vög. p. 17 (1900: Falkland Islands); Oates, Cat. Bds. Eggs, Brit. Mus. I. 226 (1901).

Stercorarius antarticus, Phil. & Landb. Cat. Av. Chil. p. 47 (1868); Saunders, P. Z. S. 1876, p. 321, 1877, p. 799 (Falkland Islands); id. Voy. Chall. II. Birds, p. 139 (1880); Oust. Miss. Sci. Cap Horn, Oiseaux, pp. 169, 332 (1891: Orange Bay: Elizabeth Island: Edwards Bay: Falkland Islands); Scl. Ibis. 1894, pp. 495, 497.

GENERAL DESCRIPTION.

Size.[1] — Total length, 23 to 24 inches.
Wing, 15.5 to 16.5 inches.
Tail, 6.5 to 7.0 inches.
Bill (culmen), 2.5 inches.
Bill (greatest depth), 1.0 inches.
Tarsus, 3.0 to 3.25 inches.

Color. — Adult male. General color dark dull brown above, paler and more smoky brown below.

Head: Crown deep dull brown, shading to somewhat lighter on the sides of head and face.

Neck: Dull dark brown, a trifle lighter than the crown. The feathers of the back of the neck are acuminate and sometimes shaded with yellowish.

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[1] These measurements are taken as about the extremes of birds from the Southern Ocean. The wing sometimes reaches a length of 17 inches however. Representatives from the Falkland Islands average appreciably smaller, being only about 21 inches long, and with the culmen above 2.2 inches. The wing 15.0 and the tail about 6.4 inches.

These variations in size have been noticed by Dr. Coues, Mr. Saunders and other authorities in works cited above, and appear to have no correlation with sex, though extreme age is doubtless a factor.

Back: With the mantle dull deep brown with *few, if any, chestnut or rufous markings*, the feathers often with apparent greyish fringing and a similar appearance at the tips, *due to wear.* Lower back and rump somewhat lighter than mantle.

Wing: Like the mantle, the quills shading into dirty whitish at their bases and together forming a bar of white very noticeable in flight. The under wing coverts are dark dull brown.

Tail: Dark dull brown; short and even with little or no lengthening of the two middle tail feathers.

Lower parts: The entire lower surface is *uniform* dull brown, a little paler in shade than the upper surface.

Bill: Black. Noticeably stout. Tarsus: Black, sometimes mottled with yellow. Toes: Black, the webs a little paler. Iris: Dark hazel brown.

Immature birds are similar to the adults, except that the crown does not contrast with the sides of the head and face, and the acuminate feathers on the neck have no yellowish shading.

Young birds of the year are similar to immature birds, but have perceptible rufous shading on the lower surface and on the ends of the feathers of the mantle and upper wing coverts.

Downy young, are light buff below, darkening in tone on the upper parts.

Geographical Range.—Southern Oceans; Straits of Magellan and American Antarctica. The Falkland Islands, South Georgia, Tristan da Cunha, Prince Edward, Marion, Crozets, Kerguelen and Heard Islands.

New Zealand and adjacent Islands, Australian Seas north to Norfolk Islands, St. Paul and Amsterdam Islands and north to Madagascar and the Comoro Group.

The Antarctic Skua was not obtained by the Princeton University Expeditions to Patagonia, and the description here given is based on material in the Museum of the Philadelphia Academy of Natural Sciences and a fine series in the British Museum of Natural History.

"The tameness of the birds, in general, was most remarkable. The brown skua gulls (*Lestris antarcticus*), of which there were numbers, flew about us, uttering their harsh, scolding cries, and several times, when walking by myself, they swooped at me in such a menacing manner that I was obliged to make them keep their distance by striking at them with my stick. The common brown duck of the Strait swam in flocks close to the beach, and the kelp geese (*Chlœphaga antarctica*) were almost equally bold. The upland geese (*Chlœphaga magellanica*) were plentiful, and allowed the sportsmen to approach within a few yards of them without taking alarm, and a pair which I disturbed in one spot ran along in front of me without taking the trouble to fly off. I observed several specimens of a large owl, and two species of hawks, one a dark-coloured bird, which I had not seen in the strait, the other coloured much like a kestril, but about twice the size of that bird. One of the latter flew about so close to me that I threw my stick at it once or twice, and on one of these occasions it cooly lighted on the missile as it fell to the ground. I have already, I think, remarked on the much greater tameness of certain species of birds at the Falkland Islands, as compared with the same kinds in the Strait, a circumstance which, perhaps, may be partially accounted for by the greater scarcity of foxes in the former locality." (Cunn. Nat. Hist. Str. Magell. 1871. pp. 296–297.) (Falkland Islands.)

The habits of this Skua are dwelt on by H. N. Mosely, and a few extracts are here appended. (Notes by a Naturalist on the "Challenger," pages 123, 131, 174, 190, 254 (1879).

Inaccessible Island, Tristan da Cunha, October, 1873. "I went along the beach, and through a second wood towards the waterfall, where was the hut of the Germans, and their potato ground. A flock of thirty or forty predatory gulls (*Stercorarius Antarcticus*), were quarrelling and fighting over the bodies of penguins, the skins of which had been taken in considerable numbers by our various parties on shore. The Skua is a gull which has acquired a sharp curved beak, and sharp claws at the tips of its webbed toes. The birds are thoroughly predaceous in their habits, quartering their ground on the look-out for carrion, and assembling in numbers where there is anything killed, in the same curious way as vultures.

"They steal eggs and young birds from the penguins when they get a chance, but their principal food here appears to be the night birds, especially the Prions, which they drag from their holes, or pounce on as soon as they come out of them. The place was strewed with the skeletons of

Prions, with the meat torn off of them by these gulls, which leave behind the bones and feathers.

"The Antarctic Skua is very similar in appearance to the large northern Skua, of which a figure is given here in default of better. The two species were at first considered by naturalists to be identical; they differ, however, especially in the structure of the bill. The Skua is of a dark brown colour, not unlike that of most of the typical birds of prey. We met with the bird constantly afterwards on our southern voyage, as far down even as the Antarctic Circle; and a specimen was noticed by Ross further south still, in Possession Island."

Nightingale Island, Tristan da Cunha, October, 1873. "Besides the mollymauks and petrels, one or two pairs of Skuas had nests on a few mounds of earth in the rookery. How these mounds came there I could not understand.

"The Skuas' eggs are closely like those of the lesser black-backed gull, and two in number. The birds swooped about our heads as we robbed the nests, but were not nearly so fierce as those we encountered further south. All round their nests were scattered skeletons of Prions."

Marion Island, Prince Edward Islands, December, 1873. "There were numerous nests of the Skua about amongst the herbage in dry places. Two nests of these birds are never built near together. The birds always have a wide range of hunting ground round their nest. The Skuas in Marion Island were extremely bold and savage, as they were also in Kerguelen's Land. When one approaches the nest they swoop down, passing with a rush close down to one's head, whizzing past one's ears in a most unpleasant manner.

"The two birds take turns at towering above, and thus swooping. They have sharp claws and beaks, and no doubt would injure one's face or eyes severely if they touched them as they passed. One has to beat them off with a stick or gun barrel. They are very clever in avoiding the stick as they rush past, but several were knocked down. Sometimes I have had to waste a charge on them to get rid of them. Some pairs are much more savage than others. They have a harsh cry. Of course, when their young is handled they are most furious, and one has to keep a stick going as one carries it off. The birds are very like the Northern Skuas in their habits. One of them swooped down on a duck which I had shot one day at Kerguelen's Land which fell in the water. The bird picked it up when I was not more than half a dozen yards off, and was making off with it in its beak, carrying it easily, when I brought it down with a second shot, the duck thus costing me two barrels."

Kerguelen's Land, January, 1874. "Some of the teal were breeding at the time of our visit; some with young full-fledged and already away from the nest; others with eggs. The nest is a neat one, placed under a tuft of grass, and lined with down torn from the breast of the parent bird. There were five eggs in one nest that I found.

"The duck, when put up off the nest, to effect which the nest requires almost to be trodden upon, or when found with her young away from the nest, flutters a few yards only, as if maimed, and pitches again, and cannot be frightened into a long flight. It is curious that the bird should have retained this instinct where there are no four-footed or human enemies; possibly she finds it a successful *ruse* when the brood is attacked by the skuas.

"The young must fall constantly a prey to these ever-watchful Skuas, for in most cases I found only a single young one following the mother. There were no young met with in the condition of flappers, and the general breeding season was probably only about to begin, as it was with many birds of the island. The greater part of the birds were yet in flocks."

Amongst the Southern Ice, February-March, 1874. "Besides these two Petrels we saw when at the edge of the pack, the Sooty Albatross (*Diomedea fuliginosa*), the Giant Petrel (*Ossifraga gigantea*), *Majaqueus* [sic] *æquinoctialis* and the Cape Pigeon. These birds all left us when we entered the edge of the pack-ice; they appear to remain at its very margin; but in the ice we met with a Skua (*Stercorarius antarcticus*), which bird ranges very far south, and was seen in Possession Island, within the Antarctic Circle, by Ross."

Dr. Kidder says: "The nests are shallow cavities in the long grass, sparingly lined with grass-stems, and always situated in a dry spot. Eggs are only two in number in the four instances observed; first found November 17. A single egg was found December 20 in a nest robbed December 3. The shape is very broad ovoid, tapering rapidly to a sharp point. Shell is brittle and of loose texture, being composed of irreglarly prismatic bodies set side by side perpendicularly to the surface. Externally it is coarsely granular. Color is dark olive drab, marked superficially by irregular blotches of Vandyke-brown. Deeper markings appear as blotches of dark bluish stone color. The blotches are more plentiful over the butt-end. Those of the same nest agree generally in color, but different clutches show considerable variety of tint. Nos. 134*a* and *b* (original number), for example, are generally of a pale olive-grey, and the blotches are scarcely deeper in hue than dirty Indian-yellow." (Natural History of Kerguelen Island, J. H. Kidder, M. D. Bull., No. 3, U. S. Nat. Mus. p. 9, 1876.)

Order CHARADRIIFORMES.

Sharpe, Classif. Bds. p. 72 (1891); id., Hand-List Bds. I. p. 144 (1899).

Suborder *CHIONIDES.*

Sharpe, Classif. Bds. p. 72 (1891); id., Hand-List Bds. I. p. 145 (1899).

Family Chionididæ.

Sharpe, Cat. Birds, Brit. Mus. XXIV. p. 710 (1896); id., Hand-List Bds. I. p. 145 (1899).

Genus CHIONIS Forster.

	Type.
Chionis, Forster, Enchiridion Hist. Nat. p. 37 (1788); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 710 (1896); id., Hand-List Bds. I. p. 145 (1899)	*C. alba.*
Vaginalis, Gmelin Syst. Nat. I. p. 705 (1788)	*C. alba.*
Coleorhamphus, Dumont, Dict. Sci. Nat. X. p. 36 (1818)	*C. alba.*

Geographical Range.—Extreme southern South America and adjacent islands.

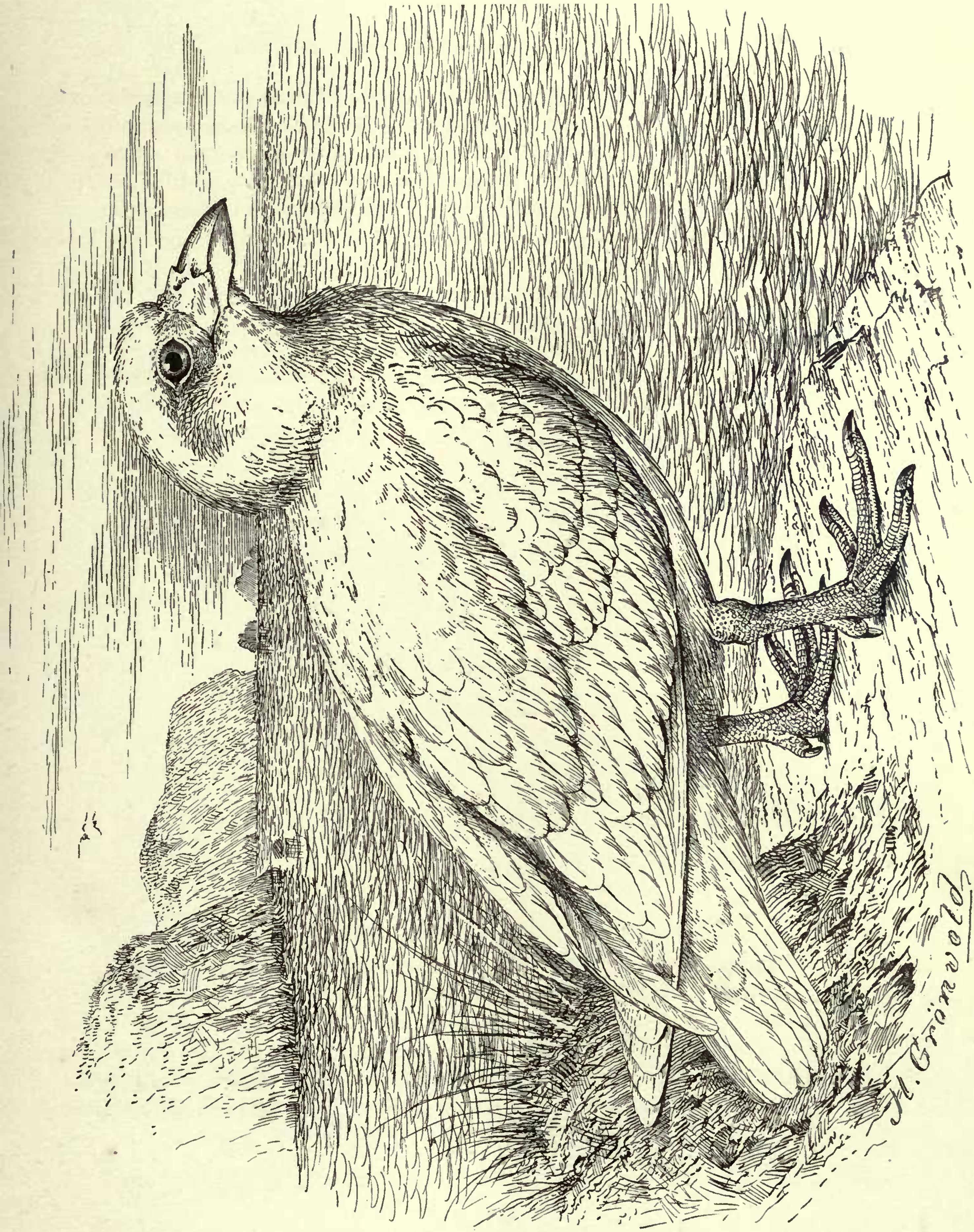
Chionis alba (Gmelin).

White Sheath-bill, Lath. Gen. Syn. III. pt. I. p. 268, pl. 89 (1785).

Vaginalis alba, Gm. Syst. Nat. I. p. 705 (1788).

Chionis alba, Quoy & Gaim. Voy. Uranie, Zool. p. 131, pl. 35 (1824); Garn. & Less. Voy. Coq. Zool. I. p. 724 (1826); Blainv. Ann. Sci. Nat. VI. p. 97 (1836); Darwin, Voy. Beagle, Birds, p. 118 (1841: Falkland Islands); Gray, List B. Brit. Mus. Part III. p. 51 (1844:

FIG. 136.



Chionis alba (Gmelin). About ⅔ natural size.

Straits of Magellan: Falkland Is.); Des Murs in Gay's Hist. Chil. Zool. I. p. 389 (1847); Gould, P. Z. S. 1859, p. 95 (Falkland Islands); Scl. P. Z. S. 1860, p. 386 (Falkland Is.); Abbott, Ibis, 1861, p. 154 (Falklands, resident); Scl. & Salv. Ibis, 1869, p. 284 (Dungeness Spit, Feb.); Cunningh. Nat. Hist. Str. Magell. p. 262 (1871); Vincig. Patag. p. 59 (1883); id. Boll. Soc. Geogr. Ital. (2) IX. p. 798 (1884); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: South Patagonia: Tierra del Fuego: Falkland Islands); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 288, 330 (1891); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 710 (1896); id. Hand-list Bds. I. p. 145 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 624 (1900: Rio Gallegos, July); Martens, Hamburg, Magalh. Sammelr. Vög. p. 15 (1900).

GENERAL DESCRIPTION.

Size, Adult. — Total length, 15 inches.
Wing, 8.8 inches.
Culmen, 1.3 inches.
Tail, 4 inches.
Tarsus, 1.75 inches.

Color, Adult. — Pure snowy white throughout: "bill black, with the base of both mandibles sulphur-yellow or greenish yellow, in some horny reddish or of the pale colour of the human finger-nail; face bare, covered with milky-white papillæ; from the fore part of the crown a narrow band continued to the angle of the culmen and from the angle of the gape beneath the eyes bare; feet bluish dusky; iris reddish dusky; eyelids bare with white papillæ." (J. R. Forster).

Geographical Range. — That of genus.

Though common in the Straits of Magellan, the Snowy Sheathbill was not obtained by the naturalists of the Princeton University Expeditions to Patagonia. The fine series of this bird in the British Museum of Natural History as well as specimens in the American Museum in New York and in the collections of the Philadelphia Academy of Natural Sciences have together formed a basis for the description given. The color of the bare and exposed parts of the face and about the bill can only be realized in a live or freshly killed bird, hence we have quoted such a diagnosis from a famous field naturalist, to complete the theme. Appended is Dr. Cunningham's account of this bird.

"At about 3 P. M. on the 17th of November, 1867, Cape Virgins, the eastern entrance to the Strait of Magellan, was sighted. As we entered the Strait and approached Dungeness Spit, a most remarkable spectacle was furnished by a herd of between fifty and sixty sea-lions assembled on the shelving beach; and soon after someone pointed out several so-called 'pigeons' flying about not far from us. These, which it was very pardonable to mistake for pigeons, from the resemblance in flight and colouring, I immediately recognized as the sheathbill (*Chionis alba*), which we did not meet with on the previous season. This interesting bird forms one of two species of a genus, regarding the true position of which in the ornithological system considerable difference of opinion has been entertained by ornithologists—some placing it among the Gallinæ, while others, and I think with more reason, are disposed to regard it as belonging to the Grallæ and allied to Hæmatopus. The above species, which derives its English name from the peculiar form of the upper mandible, was first described by Forster, and is mentioned in Cook's Voyage toward the South Pole in 1772–75, as having been found at Staten Land. Cook remarks very truly that the bird 'is about the size of a pigeon, and as white as milk,' and mentions that it has a very disagreeable smell, a circumstance also commented on by Mr. Darwin, but which I did not notice in the two specimens which I had an opportunity of examining. The legs are long, of a blackish-gray colour, and bear a considerable resemblance to those of an oyster-catcher (Hæmatopus). They feed on molluscs and other marine animals, and are often to be seen far out at sea to the south of Cape Horn. In the Strait of Magellan, however, they do not appear to be common, as I only noticed them on one or two occasions." (Voyage of H.M.S. "Nassau" in the years 1866, '67, '68 and '69. Robert O. Cunningham, M.D., F.L.S., Naturalist to the Expedition, Edinburgh, 1871.)

Darwin, observing the White Sheathbill during the voyage of the "Beagle," writes regarding it:

"I opened the stomach of a specimen at the Falkland Islands, and found in it small shells, chiefly Patellæ, pieces of sea-weed, and several pebbles. The contents of the stomach and body smelt most offensively.

Forster remarked this circumstance; but since his time other observers, namely, Anderson, Quoy, Gaimard and Lesson (Manuel d'Ornithologie, tom. II, p. 342) have found that this is not always the case, and they state that they have actually eaten the Chionis. I was not aware of these observations, but independently was much surprised at the extraordinary odour exhaled. We, like voyagers in the Antarctic seas, were struck at the great distance from land at which this bird is found in the open ocean. Its feet are not webbed, its flight is not like that of the pelagic birds, and the contents of its stomach and structure of legs show that it is a coast-feeder. Does it frequent the floating icebergs of the Antarctic Ocean, on which sea-weed and other refuse is sometimes cast?" (Darwin, Voyage of the Beagle, Birds, page 118, 1841.)

Moseley's account of the habits of *Chionarchus minor*, as he observed it breeding in Kerguelen, are appended as throwing additional light on the habits of the Sheathbills.

"On one of the digging excursions I found a nest of the Sheathbill (*Chionis minor*), and subsequently found several others. The bird has a wide range, corresponding to that of the Kerguelen cabbage, occurring like it in the Prince Edward Islands, the Crozets and Heard Islands.

"The birds (the 'Paddy' of the sealers) are present everywhere on the coast, and from their extreme tameness and inquisitive habits are always attracting one's attention. A pair or two of them always forms part of any view on the coast. The birds are pure white, about the size of a large pigeon, but with the appearance rather of a fowl. They have light pink-coloured legs, with partial webbing of the toes, small spurs on the inner side of the wings, like the spur-winged plover, and a black bill with a most curious curved lamina of horny matter projecting over the nostrils. Round the eye is a tumid pink ring bare of feathers; about the head are wattle-like warts.

"The birds have been examined anatomically by De Blainville, who concluded that they were nearly related to the Oyster-catchers. The birds nest under fallen rocks along the cliffs, often in places where the nest is difficult of access. The nest is made of grass and bents, and the eggs are usually two in number and of the shape of those of the Plovers and of a somewhat similar colouring, spotted dark red and brown. They have been described and figured by Gould, and he considers the eggs to show further alliance of the Sheathbills to the Plovers. I found two nests with three eggs, but two is the most usual number. The young are black on coming from the egg, following the usual law with white birds, the white coloring being a lately acquired peculiarity. The young one has the nostrils wide open and merely a tumidity about the posterior margin of the nostrils and across the beak where the sheath is commencing to grow out.

"On sitting down on the rocks where there are pairs of Sheathbills about, one soon has them around him, uttering a harsh, half-warning, half-inquisitive cry on first seeing one, and venturing gradually nearer and nearer, standing and gazing up at the intruder, with their heads turned on one side. The birds come frequently within reach of a stick and can often be knocked over in that way, or bowled over with a big stone, as they will sit quietly and allow half a dozen stones, as big as themselves almost, to be thrown at them.

"At length, only after being narrowly missed several times, they take flight, and make off, uttering their harsh note a succession of times. If a bird be knocked over with a stick, it is usually only stunned, the sheath-bills are very tenacious of life. If the one thus caught be tied by the leg with a string and allowed to flutter on the rocks, in front of one as one sits, the neighboring sheath-bills will come at once to fight with it and peck it, and can be knocked over one after another. When courting one another, the birds show all the attitudes of pigeons, the male bowing his head up and down and strutting, making a sort of cooing noise.

"The birds eat seaweed and shell fish, mussels and limpets, besides acting as scavengers, as already mentioned. They carry quantities of limpets and mussel shells up to the clefts or holes under the rocks which they frequent. They readily feed in confinement, and we had several on board the ship, running about quite at home. One of them established itself in one of the cutters for a short time, and used to take a fly around during the voyage to Heard Island and return again to the ship.

"The birds, though usually to be seen running on the rocks, can fly remarkably well, and their flight is like that of a pigeon. I have seen them flying at a great height about the cliffs of Christmas Harbour." (Notes by a naturalist on the "Challenger," H. N. Moseley, M.A., F.R.S., 1879, pp. 209 to 211.)

Suborder *ATTAGIDES.*

Sharpe, Classif. Bds. p. 72 (1891); id., Hand-List Bds. I. p. 145 (1899).

Family Thinocorythidæ.

Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 714 (1896); id., Hand-List Bds. I. p. 145 (1899).

Genus ATTAGIS Lesson & Isid. Geoffroy St. Hilaire.

Type.

Attagis, Lesson & Isid. Geoffr. St. Hilaire, Cent. Zool. pl. XLVII (1830); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 714 (1896); id., Hand-List Bds. I. p. 145 (1899) . . . . . *A. gayi.*

Geographical Range. — Peculiar to South America. Peru, Chili, Argentina, Patagonia; regions about the Straits of Magellan. The Falkland Islands.

Attagis gayi Lesson.

Attagis gayi, Less. Cent. Zool. p. 135, pl. 47 (1830); id. Traité d'Orn. p. 522 (1831); Gould in Darwin's Voy. 'Beagle,' Birds, p. 117 (1841: Cordilleras of Coquimbo and Copiago); Gray, Gen. B. III. p. 520 (1845); Bridges, P. Z. S. 1837, p. 29 (Tapaquilcha, 14,000 ft.: Bolivia, breeding); De Murs, Faun. Chil. Zool. I. p. 384 (1847); Reichenb. Gall. tab. CLXXXI. fig. 1554 (1850); Bp. C. R. XLIII. p. 420 (1856); Gray, List Gall. Brit. Mus. p. 94 (1867); Scl. P. Z. S. 1867, p. 331 (Chili); id. & Salv. Exotic Orn. p. 158 (1869); Gray, Hand-l. B. III. p. 20, no. 10052 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 144 (1873); Tacz. P. Z. S. 1874, p. 557 (Junin); id. Orn. Pérou, III. p. 284 (1886); Scl. P. Z. S. 1891, p. 137 (Tarapacá); James, New List Chilian B. p. 11 (1892); Sharpe, Hand-l. Bds. I, p. 145 (1899).

Attagis latreillii, Less. "Bull de Soc." XXV. p. 243; id. Ill. Zool. pl. II (1830); Gray, Gen. B. III. p. 520, pl. 135 (1845); De Murs, Faun. Chil. Zool. I. p. 385 (1847); Reichenb. Gall. tab. CLXXXI. figs. 1555–56 (1850); Bp. C. R. XLIII. p. 420 (1856); Pelz. Reis. Novara, Vög. p. 113 (1865: Chili); Scl. & Salv. Exotic Orn. p.

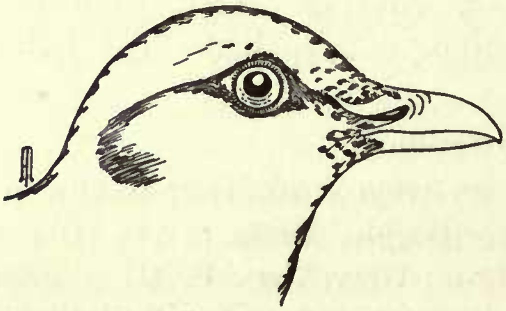
158 (1869); Gray Hand-l. B. III. p. 20, no. 10,053 (1871); Scl. & Salv. P. Z. S. 1879, p. 641 (Bolivia).

GENERAL DESCRIPTION.

Size.—Total length, about 11.5 inches.
Wing, 7.3 inches.
Culmen, 0.85 inch.
Tail, 2.75 inches.
Tarsus, 1.1 inches.

Color.—General color above, deep umber, each feather vermiculated with grey, silvery in character, and cinnamon and rusty. The vermiculations follow the outline of each feather and are transverse at the ends of the feathers and marginal on the sides of the vanes. Below, the prevailing color is warm cinnamon; each feather fringed with silvery grey and marked with two or more umber bands following the outline of the feather.

FIG. 137.



Attagis gayi. Head. Natural size. P. U. O. C. 7918. Adult male.

Head.—Forehead, occiput and crown deep umber, each feather fringed with silvery grey and marked with cinnamon in lines following the shape of the feather. The lores and the region back of each eye lighter, defining the crown; the auriculars dusky, with cinnamon and grey hues.

Neck: Above as in the general description. Below, on the lower neck, the cinnamon is much concealed by the defined subterminal bars of umber on each feather. The throat much paler cinnamon or dull cream, each feather spotted with deep umber.

Back: As described in general color and pattern.

Tail: Feathers dusky in ground color, with decorations similar to those on the feathers of the back.

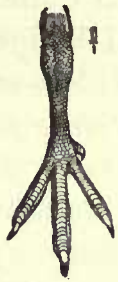
Wings: Upper coverts and scapulars like the back in color and pattern. Bastard wing and primary coverts blackish, with sandy rufous margins. Quills light brownish, blackish on the outer web and at the tips of the primaries, which are fringed with white.

Under parts: Warm cinnamon as described in marking and pattern. Bill dull horn color (dry skin). Tarsi and feet dull brown. P. U. O. C. 7918 ♂, Arroyo Gio, Patagonia, 27 May, 1898. The sexes are alike in color and size.

Young birds are more uniform in color above, owing to the extreme fineness of the vermiculation, and of a general sandy cinnamon in tone. Below the barring is not so defined, the cinnamon color preponderating. Feet and bill pale brown. P. U. O. C. 7919, Patagonia. No sex. Moulting from down to first plumage.

Geographical Range. — Northern Patagonia, as far south as the region south of Lake Buenos Aires and the Santa Cruz River. Chili and Peru.

Fig. 138.



Attagis gayi. Foot, about one half natural size. P. U. O. C. 7917. Adult female.

The Princeton University Expeditions to Patagonia found this grouse-like plover in the foothills of the Cordilleras and on the pampas in the vicinity of Lake Buenos Aires. Mr. Hatcher writing of it says: "Found over the pampas and in the valleys, more especially where there is a warm sandy soil with considerable bush. Not common, especially south of the Santa Cruz River where it was only seen at two localities." (J. B. Hatcher in manuscript field-notes.) Unfortunately a half grown young bird is without a label and there are no notes as to its time of capture. The birds are known in the high Andes (see De Murs, Faun. Chil. Zool. I. p. 384, 1847) where they have been found breeding.

Darwin says: "A specimen was given me which was shot on the lofty Cordillera of Coquimbo, only a little below the snow-line. At a similar height, on the Andes, behind Copiapo, which appear so absolutely destitute of vegetation, that any one would have thought that no living creature could have found subsistence there, I saw a covey. Five birds rose together, and uttered noisy cries; they flew like grouse, and were very wild. I was told that this species never descends to the lower Cordillera. These two species in their respective countries, occupy the place of the ptarmigan of the Northern Hemisphere." (Darwin, Voyage of the "Beagle," Birds, page 117, 1841.)

P. U. O. C.	Sex	Locality	Date	Collector
7918	♂ad.	Arroyo Gio, Patagonia.	27 May, 1898,	A. E. Colburn.
7917	♀ad.	" " "	24 May, 1898,	"
7919	Juvenis.	Patagonia.	" "	"

ATTAGIS MALOUINUS (Boddaert).

Caille des isles Malouines, D'Aubent. Pl. Enl. II. pl. 322.

La Caille des isles, Buff. Hist. Nat. Ois. II. p. 477 (1771).

Malouine Quail, Lath. Gen. Syn. II. pt. 2, p. 786 (1783: Falkland Islands).

Tetrao malouinus, Bodd. Tabl. Pl. Enl. p. 13 (1783).

Tetrao falklandicus, Gm. Syst. Nat. I. p. 762 (1788).

Perdix falklandica, Lath. Ind. Orn. II. p. 653 (1790).

Coturnix falklandica, Stephens in Shaw's Gen. Zool. XI. p. 386 (1819).

Attagis falklandica, Darwin, Voy. Beagle, Birds, p. 117 (1841: Mountains of the extreme southern parts of Tierra del Fuego); Des Murs in Gay's Hist. Chil. Zool. I. p. 385 (1847); Scl. & Salv. Ibis, 1868, p. 188 (Peckett Harbour, March); Cunningh. Nat. Hist. Str. Magell. p. 183 (1871); Sharpe, P. Z. S. 1881, p. 12 (Cockle Cove, Feb.).

Attagis malouinus, Gray, List B. Brit. Mus. Part III. p. 51 (1844: Straits of Magellan: Hermit Island); Scl. P. Z. S. 1861, p. 46 (Falkland Islands); Abbott, Ibis, 1861, p. 154 (Mare Harbour, Falkland Is., Oct.); Scl. & Salv. Nomencl. Av. Neotr. p. 144 (1873); Oust. Miss. Scient. Cap. Horn, Oiseaux, pp. 107, 330 (1891); Sharpe, Cat. Bds. Brit. Mus. XXIV, p. 716 (1896); id. Hand-list Bds. I. p. 145 (1899); Salvad. Ann. Mus. Genov. (2) XX, p. 623 (1900: Punta Arenas, May: Santa Cruz, July: Punta Delgada, July); Martens, Hamb. Magalh. Sammelr. Vög. p. 16 (1900: Straits of Magellan, Tierra del Fuego, Falkland Islands).

Attagis sp. Vincig. Patag. p. 26 note (1883: Santa Cruz); id. Boll. Soc. Geogr. Ital. (2) IX. p. 798 (1884).

GENERAL DESCRIPTION.

Size, Adult.—Total length, about 10.05 inches.

Wing, 6.7 inches.

Culmen, 0.6 inch.

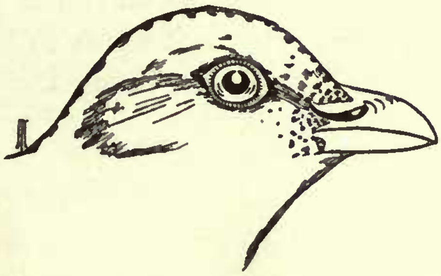
Tail, 2.3 inches.

Tarsus, 0.8 inch.

Color, Adult. — General color above dark umber, each feather margined with warm sandy grey and many of the feathers with one or more inner rufous bands following the shape of the feather. Below white except the breast and throat, which are sandy buff with circular black or deep brown markings.

Head: Forehead, crown and occiput deep umber brown, almost black, each feather bordered or margined with sandy rufous. The crown defined by a lighter isabelline eyebrow stripe. Lores and sides of face isabelline, narrowly streaked with dusky. Auricular region more rufous and similarly streaked.

Fig. 139.



Attagis malouinus. Natural size. P. U. O. C. 7989. Adult.

Back: Upper back as described in general color; the lower back and rump much more closely vermiculated with sandy edges and V-shaped rufous decorations to each feather. Upper tail coverts dusky, particularly near the extremities, and fringed and decorated with sandy buff markings.

Tail: The rectrices, blackish, tipped with dirty white and irregularly barred with sandy buff.

Wing: The upper coverts deep umber or blackish, each feather margined with isabelline and decorated with horseshoe or V-shaped rufus markings. The primaries brown, darkening at the ends and with narrow isabelline tips. Outer secondaries similar to the primaries and the inner secondaries margined with isabelline and decorated with rufous marking similar to those of the greater coverts.

Lower Parts: The throat is almost white, shading into bright sandy rufous on the lower throat, neck and breast, each feather fringed with isabelline and decorated with black circular markings. This coloration ends abruptly on the lower breast, the rest of the lower surface being pure white. The lower tail coverts are isabelline with concealed decorations of dusky color.

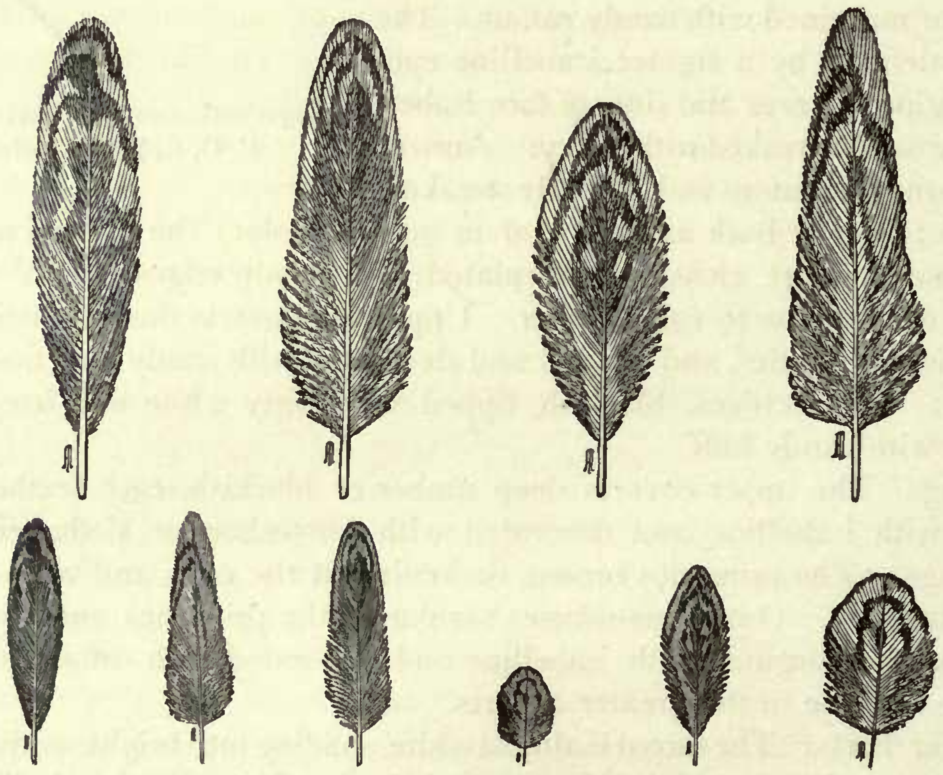
Bill dusky horn, paling on lower mandible near base.

Feet and legs dusky (P. U. O. C. No. 7989, Patagonia, 15 April, 1899).

Geographical Range. — The Falkland Islands, Tierra del Fuego and lands about the Straits of Magellan. North in southern Patagonia to at least 52° south latitude on the coast, and on the foothills of the southern Andes up to 4,000 feet altitude, north to at least 40° south latitude.

Mr. Colburn obtained a female of this species at Arroyo Gio on May 30, 1898, the same locality where he collected about the same date a pair of *A. gayi.* The occurrence of the two kinds of *Attagis* in proximity or together does not seem to have been observed before. The work of the naturalists of the Princeton University Expeditions to Patagonia throws new light on the distribution and range of both *A. gayi* and *A. malouinus*, the southern range of *A. gayi* being extended well into Patagonia proper and the northern range of *A. malouinus* bringing that species at least into the southern boundary of *A. gayi.* Mr. Hatcher writes in his manuscript field-notes regarding *A. gayi:* "Common along the foothills of the southern Andes at altitudes of from 2,000 to 4,000 feet, where it occurs on the open stretches of country, especially where berries are abundant."

FIG. 140.



Attagis malouinus. Showing the pattern of the feather decoration. All natural size. P. U. O. C. 7989.

The birds are known to breed in November and December in the mountains and hills about Orange Bay. (Oustalet, op. cit., p. 107.) The same writer also speaks of four individuals, a male and three females, taken in the vicinity of Orange Bay, and kept alive for three days. The iris was dark brown, beak blackish brown, and the legs and feet greyish. Another specimen differed in having the feet and legs grey, tinged with yellow.

Darwin's account of *A. malouinus* under the name of *A. falklandica* is of special interest. He writes, "The bird is not uncommon on the mountains in the extreme southern parts of the Tierra del Fuego. It frequents, either in pairs or small coveys, the zone of alpine plants above the region of forest. It is not very wild, and lies very close on the bare ground." (Darwin, Voyage of the Beagle, Birds, page 118, 1841.)

There are, in the British Museum, five males and two females all fully adult birds, collected in the Valle del Lago Blanco, Chubut, by J. Koslowsky during the months of September and June, 1899–1901. This (Lat. 46 S.: Long. 71 W.) appears to be the most northern record of the species.

P. U. O. C.	Sex	Locality	Date	Collector
7920	♀	Arroyo Gio, Patagonia.	30 May, 1898.	A. E. Colburn.
7987	Unknown.	Killik Aike, Patagonia.	15 April, 1899.	O. A. Peterson.
7988	Unknown.	Killik Aike, Patagonia.	15 April, 1899.	O. A. Peterson.
7989	Unknown.	Killik Aike, Patagonia.	15 April, 1899.	O. A. Peterson.

Genus THINOCORYS (Eschscholtz).

	Type.
Thinocorus, Eschscholtz, Zool. Atlas, p. 2 (1829); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 717 (1896)	*T. rumicivorus.*
Thinocorys, Sharpe, Hand-List Bds. I. p. 146 (1899) .	*T. rumicivorus.*
Ocypetes, Wagler, Isis, 1829, p. 762	*T. rumicivorus.*

Geographical Range. — Peculiar to South America. Chili, Peru, the Argentine Republic and Patagonia.

THINOCORYS ORBIGNIANUS (Isid. Geoffr. St. Hilaire & Lesson).

Tinochorus orbignyanus, Geoffr. & Less. Cent. Zool. p. 137, pls. 48, 49 (1830); Fraser, P. Z. S. 1843, p. 115 (Chili); Des Murs in Gay's Hist. Chil. Zool. I. p. 387 (1847).

Thinochorus ingæ, Tschudi, Arch. fur Nat. 1843, p. 387 (Peru); Pelz. Reis. Novara, Vög. p. 113 (1865: Chili); Scl. P. Z. S. 1867, p. 330 (Chile).

Thinochorus orbignyanus, Gray, List B. Brit. Mus. Part III. p. 51 (1844: Chili); Burm. Reis. La Plata, II. p. 500 (1861); Hartl. Naum. 1853, p. 221 (Chili); Scl. & Salv. Nomencl. Av. Neotr. p. 144 (1873); Tacz. Orn. Pérou, III. p. 281 (1886); Scl. P. Z. S. 1886, p. 403 (Tarapacá); Philippi, Ornis, IV. p. 159 (1888); Scl. & Huds. Argent. Orn. II. p. 178 (1889); Scl. P. Z. S. 1891, p. 137 (Tarapacá); James, New List Chil. B. p. 11 (1892); Lane, Ibis, 1897, p. 306 (Sacaya, Cancosa, & Lake Huasco); Schalow, Zool. Jahrb. Suppl. IV. p. 662 (1898: Punta Arenas, Feb.); Salvad. Ann. Mus. Genov. (2) XX. p. 623 (1900: Penguin Rookery, Feb.); Martens Hamb. Magalh. Sammelr. Vög. p. 16 (1900: Patagonia).

Thinocorus sp., Vincig. Patag., p. 59 (1883); id. Boll. Soc. Geogr. Ital. (2) IX. p. 798 (1884).

Attagis falklandica, Vincig. (nec Gm.) Exped. Austr. Arg. p. 58 (1883: Isola degli Stati).

Thinocorus orbignianus, Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 718 (1896).

Thinocorys orbignianus, Sharpe, Hand-list Bds. I. p. 146 (1899).

GENERAL DESCRIPTION.

Size, Adult Male. — Total length, about 9 inches.

Wing, 6 inches.

Culmen, 0.55 inch.

Tail, 2.5 inches.

Tarsus, 0.95 inch.

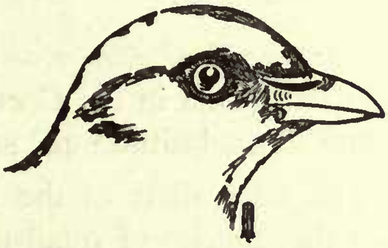
The female is a little smaller than the male.

Color, Adult Male. — General color, head, back and wings deep umber brown, each feather margined with sandy buff and decorated with rufous. An interval on the nape and neck blue grey. Below throat, lower breast and abdomen white, the chest and neck blue grey, with narrow line of black crossing the chest.

Head: Crown deep umber brown, each feather broadly margined with sandy rufous. A broad frontal band of grey. The feathers above the eyes and auricular regions have narrow dark shaft-streaks with sandy buff margins. The blue grey of the throat reaches up to the lower part of the face and cheeks.

Neck: Blue grey, above and below, except on the chin which is white in a defined area separated from the blue of the throat by a line of black and reaching up to the lower part of the cheeks.

FIG. 141.



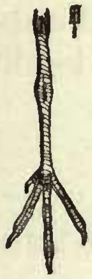
Thinocorys orbignianus. Natural size. P. U. O. C. 7779. Adult female.

Back: As described, in general color; the upper tail coverts more sandy rufous in appearance.

Tail: Rectrices deep umber brown, with sandy white tips and a few decorations of sandy rufous in bars and blotches.

Wings: Much like the back in general; the upper wing coverts more broadly margined with sandy buff, and profusely decorated with rufous. Bastard wing, primary coverts and quills deep grey brown with narrow greyish margins to the outer webs extending around the extremity of each feather for a short distance on the inner web. This becomes more apparent on the inner secondaries which have concealed white bases, defined by a narrow blackish line.

FIG. 142.



Thinocorys orbignianus. Leg and foot, one half natural size. P. U. O. C. 7779. Adult female.

Lower parts: The chin white, the throat and neck blue grey, extending down on the chest, across which is a narrow interrupted line of blackish. The sides of the upper breast are sandy buff, mottled with deep umber brown. An area of dark brown feathers on the flanks. The under wing coverts deep blackish brown, tipped with whitish, and the axillaries blackish. The remainder of the under surface, under chest, breast and abdomen white, shaded with cream color on the breast and under tail coverts.

"Iris brown"; "bill horn color"; "feet yellow." (Sclater in P. Z. S., 1886, p. 403.)

The adult female differs from the male in color. Crown, nape and upper hind neck are like the back. White prevails on the sides of the face, the cheeks and lower throat, all of which are streaked with brownish black. The chin and upper throat are white, and the fore neck is ashy grey with a bluish shade, the feathers being fringed with dusky.

Geographical Range.—Chili, Bolivia and Peru, extending southward into Patagonia in the Cordillera to the upper waters of the Rio Chico de Santa Cruz, latitude 49° south, longitude 72° west.

The naturalists of the Princeton University Expeditions to Patagonia met this species of quail-like plover at the head waters of the Rio Chico de Santa Cruz, where a single bird was secured on 20 February, 1897 P. U. O. C. ♀ adult 7779. This extends materially the known habitat of *T. oribignianus*, bringing it well into the Patagonian territory. It will doubtless be found common at points in northern Patagonia and in southern Patagonia at least as far south as indicated. Mr. Hatcher in speaking of it in his manuscript field-notes says: "Occurring in coveys of from 10–20 on the high pampas near the coast. Of similar habits and distribution to the former." ("Former" here refers to *Attagis gayi.*)

Two examples of this species have been collected by J. Koslowsky, in the Valle del Lago Blanco, Chubut district, in November and December, 1901. This appears to be the first record of the bird in this locality. They are both males and are fully adult.

P. U. O. C.	Sex	Locality	Date	Collector
7779	♀, adult.	Rio Chico de Santa Cruz, near Lake Argentina, Patagonia.	20 February, 1897.	J. B. Hatcher.

THINOCORYS RUMICIVORUS (Eschscholtz).

Thinocorus rumicivorus, Eschscholtz, Zool. Atlas, p. 2. pl. 2 (1829: Chili); Darwin, Voy. "Beagle," Birds, p. 117 (1841: Santa Cruz, Patagonia: Chili); Burm. La Plata Reis. II. p. 501 (1861: Rosario); Scl. P. Z. S. 1867, p. 331 (Chili); id. & Salv. Ibis, 1868, p. 188 (Peckett Harbour); iid. P. Z. S. 1868, p. 143 (Conchitas); iid. Ibis, 1869, p. 284 (Gregory Bay, Dec.); 1870, p. 499 (Sandy Point, March); Cunningh. Nat. Hist. Str. Magell. p. 183 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 144 (1873); Durnf. Ibis, 1876, p. 164 (Buenos Aires, May to Sept.); id. Ibis, 1877, p. 42 (Chupat Valley, Nov.) p. 197 (Buenos Aires, winter visitor, Baradero, April); id. Ibis, 1878, p. 403 (Central Patagonia resident, breeds in Oct. and also observed chicks in March); Doering, Expl. al Rio Negro, Zool. p. 56 (1882); Salvin, P. Z. S. 1883, p. 429 (Coquimbo); Tacz. Orn. Pérou, III. p. 283 (1886); Scl. & Huds. Argent. Orn. II. p. 176 (1889); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888), part XI. p. 319 (1890: Northern and Central Patagonia); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 108, 330 (1891); Scl. P. Z. S. 1891, p. 137 (Tarapacá); Holland, Ibis, 1891, pp. 16, 19; id. Ibis, 1892, p. 211 (Estancia Espartilla, March to June, fairly common); James, New List Chil. B. p. 11 (1892); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 719 (1896); Lane, Ibis, 1897, p. 304 (Tarapacá); Schalow, Zool. Jahrb. Suppl. IV. p. 662 (1898: Cabo Espiritu Santo, E. Tierra del Fuego, Feb.: El Paramo Bahia, San Bastrana, E. Tierra del Fuego, Feb.); Salvad, Ann. Mus. Genov. (2) XX, p. 624 (1900: Punta Arenas, May); Martens, Hamb. Magalh. Sammelr. Vög. p. 16 (1900); Nicoll. Ibis., 1904, p. 43 (Punta Arenas).

Tinochorus swainsonii, Less. Ill. Zool. pl. 16 (1830); Des Murs in Gay's Hist. Chil. Zool. I. p. 388 (1847).

Tinochorus eschscholtzii, Geoffr. & Less. Cent. Zool. p. 140, pl. 50 (1830); Fraser, P. Z. S. 1843, p. 116 (Chili, in flocks in winter).

Thinocorus swainsoni, Gray, List B. Brit. Mus. Part III. p. 51 (1844: Chile); Pelz. Reis. Novara, Vog. p. 113 (1865).

Thinocorys rumicivorus, Sharpe, Hand List Bds. I. p. 146 (1899).

GENERAL DESCRIPTION.

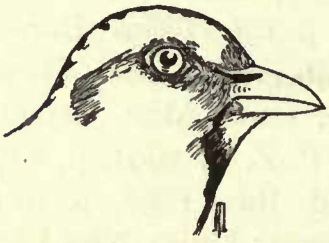
Size, Adult Male. — P. U. O. C. 7781. Total length, about 6.5 inches.
Wing, 4.8 inches.
Culmen, 0.45 inch.
Tail, 1.9 inches.
Tarsus, 0.65 inch.
The female is appreciably smaller than the male.

Color, Adult Male, P. U. O. C. 7781. — In general appearance very similar to *T. orbignianus*, but readily distinguished by its much smaller size and by the markings on the neck, throat and upper breast.

Head: Forehead and back to the eyes slate color. Crown and occiput dull deep brown, each feather margined with sandy buff. Sides of head and face slate, the ear coverts tinged with sandy.

Neck: Chiefly like crown above, but interrupted by a slaty collar, just behind the occiput. Sides of neck slaty, paler than on the face and forehead. Throat white, separated from the slaty of the face and neck by a black line one-fourth of an inch in width, which starts at the base of the lower mandible. These lines on either side of the white throat widen and join into a broad mesial band, which, passing down the neck, widens in its turn so as to form a black dividing line between the white of the breast and the slaty gray of the sides of the neck.

Fig. 143.



Thinocorys rumicivorus. Natural size. P. U. O. C. 7781. Adult male.

Back: Dull deep umber, each feather margined with sandy rufous, and decorated with rufous markings. This is particularly noticeable on the greater coverts of the wing. Rump like the back, and upper tail coverts similar in color and marking.

Tail: Rectrices brownish black, tipped and margined with sandy white, which becomes pure white on the two outer feathers, where the white areas preponderate.

Wing: Upper coverts like the back. Bastard wing, primary coverts and quills grayish black, with white or isabelline etching and tips, most conspicuous on the primary coverts and secondary quills.

Lower parts: Neck and chest as described. The sides of the breast shaded with sandy rufous feathers, which have obscure brown markings. Rest of under parts white, except some of the under tail coverts, which are isabelline, with some brown markings. Axillaries blackish. Under wing coverts blackish, with white fringing.

Bill and feet much as in *T. orbignianus.* The female differs from the male in having the foreneck brown, no collar interrupting the brown of the upper neck. The white throat is separated from the brown of the foreneck by a line of black, which extends upward to the fore part of the cheeks, and down in disconnected spots to the chest, forming an obscure line across that region. This black marking is much as in the male, but obscure and indefinite and not nearly as pronounced.

Immature males (P. U. O. C., Nos. 7780 and 7916) resemble adult female birds, but there is no slate color on the fore part of crown and forehead, the vermiculations are darker colored; the black markings on the throat are much less defined in the younger of the two, No. 7916. The feet and bill are much like those of the adult in color.

Geographical Range.—Patagonia and the Argentine Republic, Chili, Bolivia and Peru.

The naturalists of the Princeton University Expeditions to Patagonia met this sparrow-like Plover frequently, and Mr. Hatcher's observations in manuscript field-notes say: "Common on the high pampas near the coast, where they occur in small flocks. When startled from a distance they first nestle very close to the ground, and if approached more closely they fly very rapidly for a short distance, then settle on the ground and conceal themselves in the short grass. The color of the feathers of the back and wings of all the species of this group of birds (*Attagides*) in Patagonia is splendidly adapted for their preservation. So well do these colors harmonize with that of the brown grass and shingle of the Patagonian plains that these birds are extremely difficult to see when nestled closely to the ground, as is their custom when any danger is discovered."

Darwin noticed these birds with great interest, and a summary of his record is appended as giving additional points in their biography:

"A very singular little bird, *Tinochorus rumicivorus*, is here common; in its habits and general appearance, it nearly partakes of the characters, different as they are, of the quail and snipe. The Tinochorus is found in the whole of southern South America, wherever there are sterile plains, or open dry pasture land. It frequents in pairs or small flocks the most desolate places, where scarcely another living creature can exist. Upon being approached they squat close, and then are very difficult to be distinguished from the ground. When feeding they walk rather slowly, with their legs wide apart. They dust themselves in roads and sandy places, and frequent particular spots, where they may be found day after day; like partridges, they take wing in a flock. In all these respects, in the muscular gizzard adapted for vegetable food, in the arched beak and fleshy nostrils, short legs and form of foot, the Tinochorus has a close affinity with quails. But as soon as the bird is seen flying its whole appearance changes; the long pointed wings, so different from those in the gallinaceous order, the irregular manner of flight, and plaintive cry uttered at the moment of rising, recall the idea of a snipe. The sportsmen of the "Beagle" unanimously called it the short-billed snipe. To this genus, or rather to the family of Waders, its skeleton shows that it is really related.

"The Tinochorus is closely related to some other South American birds. Two species of the genus *Attagis* are in almost every respect ptarmigans in their habits; one lives in Tierra del Fuego, above the limits of the forest land; and the other just beneath the snow-line on the Cordillera of Central Chile." (Darwin, Voyage of the "Beagle," p. 94. Edition 1888, D. Appleton & Co., New York.)

"In the course of the day two curious little birds new to us were shot — the *Thinocorus rumicivorus* and *Attagis Falklandica* — the true position of which, in a strictly natural classification of birds, appears to be somewhat doubtful. Of the former bird Mr. Darwin has remarked, that 'it nearly equally partakes of the characters, different as they are, of the quail and of the snipe'; and that it 'is found in the whole of southern South America, wherever there are sterile plains, or upon open, dry pasture land,' adding, that he saw it as far south as the inland plains of Patagonia, at Santa Cruz, in latitude 50°. In the Strait of Magellan it appears to be not uncommon, as we frequently saw small flocks on subsequent occasions. Its habits, in so far as I had an opportunity of observing them, greatly resembled those of a small plover; and I have several times mistaken it for one of these birds. The latter bird, *Attagis*, which considerably exceeds the former in size, was seen by Mr. Darwin, 'on the mountains in the extreme southern parts of Tierra del Fuego,' where 'it frequents, either in pairs or coveys, the zone of alpine plants above the region of the forest,' but was never observed by us except on the open low-lying country of the eastern portion of the Strait. The plumage is prettily mottled, somewhat like that of a quail. An allied species of the genus (*A. Gayi*) occurs on the mountains of Chili." (Cunn. Nat. Hist. Str. Magell., 1871, p. 183.) This was at Peckett Harbor, Straits of Magellan.

"Iris dark brown; bill yellowish; tarsi and toes yellow. I shot this curious little bird close to the town of Punta Arenas. I put it up from a rubbish-heap of tin cans, kettles, etc., close to the sea. A few days afterwards I saw a small flock further along the shore. They were very wild. The flight of this species resembles that of a Dunlin. I did not hear it utter any cry." (M. J. Nicoll, Orn. Jour. Voy. around World, Ibis, Jan., 1904, p. 43.)

This bird is no doubt resident and very plentiful in the Chubut Valley, as J. Koslowsky has procured them in that district in the months of February, August, September, October and November. The specimens sent by him are seven males and all in adult plumage.

Con.	P. U. O. C.	Sex	Locality	Date	Collector
Skin.	7780	♂ immature.	Near Mt. Tiger, Patagonia.	16 September, 1896.	J. B. Hatcher.
Skin.	7781	♂ adult.	Patagonia.	17 August, 1896.	J. B. Hatcher.
Skin.	7916	♂ juvenis.	Rio Santa Cruz, Patagonia.	2 March, 1898.	A. E. Colburn.

Suborder *CHARADRII.*

Sharpe, Classif. Bds. p. 73 (1891); id., Hand-List Bds. I. p. 146 (1899).

Family CHARADRIIDÆ.

Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 90 (1896); id., Hand-List Bds. I. p. 146 (1899).

Subfamily *ARENARIINÆ.*

Sharpe, Cat. Bds. Brit. Mus. p. 91 (1896); id., Hand-List Bds. I. p. 146 (1899).

Genus ARENARIA Brisson.

	Type.
Arenaria, Brisson, Orn. V. p. 132 (1760); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 91 (1896); id., Hand-List I. p. 146 (1899)	*A. interpres.*
Morinella, Meyer & Wolf, Taschenb. Voy. Deutschl. II. p. 383 (1810)	*A. interpres.*
Strepsilas, Illiger, Prodr. p. 263 (1811)	*A. interpres.*
Cinclus, Gray, List. Gen. Bds. 1841, p. 85 (ex Mœhring) .	*A. interpres.*

Geographical Range. — Cosmopolitan.

ARENARIA INTERPRES (Linnæus).

The Turnstone or Sea-Dottrel, Catesby, Nat. Hist. Carol. I. p. 72, pl. 72 (1731).

The Turnstone from Hudson's Bay, Edwards, Nat. Hist. B. III. p. 141, pl. 141 (1750).

Le Coulon-chaud, Briss. Orn. V. p. 132 (1760); Daubent. Pl. Enl. IX. pl. 856.

Le Coulon-chaud cendré, Briss. Orn. V. p. 137 (1760).

Tringa interpres, Linn. Syst. Nat. I. p. 248 (1766); Gm. Syst. Nat. I. p. 671 (1788); Wilson, Amer. Orn. VII. p. 32, pl. 57, fig. 1 (1813); Chapm. Trav. S. Afr. II. App. p. 416 (1868); Gätke, Vogelw. Helgoland, p. 524 (1891).

Tringa morinella, Linn. Syst. Nat. I. p. 249 (1766), ex Catesby; Gm. Syst. Nat. I. p. 671 (1788).

Coulon-chaud de Cayenne, Daubent. Pl. Enl. IX. pl. 340.

Coulon-chaud gris de Cayenne, Daubent. t. c. pl. 857.

Tringa hudsonica, P. L. S. Müll. S. N., Anhang, p. 114 (1776); Cass. Pr. Phil. Acad. 1864, p. 246.

Le Tourne-Pierre, Buff. Hist. Nat. Ois. VIII. p. 130, pl. X. (1781).

Turnstone, Lath. Gen. Syn. III. pt. I, p. 188 (1785); Yarr. Brit. B. II. p. 422 (1843).

Morinella collaris, Meyer & Wolf, Taschenb. II. p. 383, note (1810).

Strepsilas collaris, Temm. Man. d'Orn. p. 349 (1815); id. op. cit. 1820, p. 553; Werner, Atlas, Coureurs, pl. 18 (1827); Brehm, Vög. Deutschl. p. 558 (1831); Gould, B. Eur. IV. pl. 318 (1837); Crespon, Orn. Gard. p. 372 (1840); Nordm. in Démid. Voy. Russ. Mérid. III. p. 237 (1840); Tschudi, Faun, Peruan. p. 297 (1846); Kjærb, Danm. Fugle, pl. XXXI. fig. 1, Suppl. 14, fig. 3 (1852); Schl. Vog. Nederl. pl. 218 (1854); id. Dier. Nederl. Vog. pl. 22, figs. 1, 2, 2*a* (1861); F. & P. Godm. Ibis, 1861, p. 86 (Bödö, breeding); Severtz. Turkest. Jevotn. p. 69 (1873: migrant).

Arenaria interpres, Vieill. N. Dict. d'Hist. Nat. XXIV. p. 345 (1819); Roux, Orn. Provenç. pls. 280, 281 (1825); Stejn. Auk, I. p. 229 (1884); id. Bull. U. S. Nat. Mus. no. 29, p. 102 (1885: Bering Isl.); A. O. U. Check. l. Amer. B. p. 165 (1886); Turner, Contr. N. H. Alaska, pp. 150, 190 (1886); Cory, Auk, III. p. 502 (1886: Grand

Cayman); Towns. Auk, IV. p. 12 (1887: Kowak R. N. Alaska); Dwight, t. c. p. 16 (Cape Breton); Nelson, Nat. Hist. Alaska, p. 128 (1887: S. Mathew's Isl.: S. Lawrence Isl., breeding); Ridgway Manual N. Amer. B. p. 180 (1887); Warren, B. Pennsylv. p. 237 (1888: Lake Erie on passage); Smith & Palmer, Auk, V. p. 147 (1888: R. Columbia); Sennett, t. c. p. 110 (Texas, July); Stejn. Proc. U. S. Nat. Mus. XII. p. 381 (1889: Kauai); Cory, Auk, VI. p. 31 (1889: Cayman Brac); Dutcher, t. c. p. 129 (Little Gull Island, N. Y.); Scott, t. c. p. 159 (Gulf Coast of Florida, John's Pass, June); Cantwell, t. c. p. 240 (Minnesota); Reichen. Syst. Verz. Vög. Deutschl. p. 52 (1889); Cory, B. W. Ind. p. 231 (1889); Scott, Auk, VII. p. 309 (1890: Dry Tortugas, March and April); Eagle Clarke, t. c. p. 221 (Ft. Churchill, Hudson's Bay); Allen, Auk, VIII. p. 164 (1891: Nova Scotia, summer migrant); Ridgw. t. c. p. 337 (Watling Isl., Bahamas, March); Cory, t. c. pp. 351, 352 (Inagua Isl.: Anguilla Isl.); Scott, Auk, IX. p. 15 (Jamaica); Cory, t. c. p. 48 (Maraguana); Scott, t. c. p. 212 (Florida); Mackay, t. c. p. 306 (Nantucket); Rhoads, Auk, X. p. 17 (Washington Territory); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 92 (1896); id., Hand-l. Bds. I. p. 146 (1899); Bryan, Auk, 1903, p. 210 (Mid-Pacific).

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Tringa oahuensis, Bloxham in Byron's Voy. "Blonde," p. 251 (1826).

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Cinclus morinellus, Gray, List. Gen. B. p. 85 (1841).

Cinclus interpres, Gray, List. Gen. B. p. 85 (1841); Rüpp. Syst. Uebers. p. 118 (1845); Gray, Gen. B. III. p. 549 (1846); id. Cat. B. Trop. Isl. Pacific Ocean, p. 48 (1859); id. P. Z. S. 1860, p. 363 (E. Gilolo), id. Hist. Brit. B. p. 143 (1863); Layard, B. S. Afr. p. 301 (1867); Gray, Hand-l. B. III. p. 22, No. 10068 (1871); Gurney in Anderss. B. Dam. Ld. p. 276 (1872: Walfisch Bay); Heugl. Orn. N. O.-Afr. III. p. 1037, IV. p. CLXXXIII. (1873: Egyptian sea-coast, Red Sea, breeding?); Hume, Str. F. I. p. 223 (1873: Karachi, Mekran Coast); id. op. cit. II. p. 292 (1874: Andamans: Nicobars).

Strepsilas minor, Brehm, Vogelf. p. 285 (1855).

Strepsilas collaris vulgaris, etc., etc. (!), A. E. Brehm, Verz. C. L. Brehm; p. 12 (1863; teste Dresser).

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Morinella interpres, Stejn. Proc. U. S. Nat. Mus. V. p. 34 (1881).

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1862, p. 255 (Foochow, Dec.); id. t. c. 1863, p. 414 (Formosa); Albrecht, J. f. O. 1862, p. 205 (Jamaica); Swinh. P. Z. S. 1863, p. 315 (Amoy); A. Newt. in Baring-Gould's "Iceland," p. 411 (1863: breeding); Layard, Ibis, 1863, p. 250 (Cape St. Francis, Dec.); Blakist. t. c. p. 130 (York Factory, Aug.: MacKenzie R.); E. Newt. t. c. p. 455 (Madagascar); Jerd. B. Ind. III. p. 656 (1863: 200 miles inland in Deccan); March, Proc. Philad. Acad. 1864, p. 66 (Jamaica: breeding); Scl. Ibis, 1864, p. 301 (Anjouan Isl.); Wright, t. c. p. 148 (Malta, May, Aug., Dec.); Kirk, t. c. p. 332 (Lake Nyasa); Gurney, t. c. p. 355 (Natal); Salvin, t. c. p. 385 (Brit. Honduras, April); Schl. Mus. Pays-Bas, Cursores, p. 43 (1865); Gigl. Ibis, 1865, p. 59 (Pisa); E. Newt. t. c. p. 150 (Rodriguez, Oct.); Salvin, t. c. p. 191 (Guatemala, Jan.); Wright, t. c. p. 466 (Malta, May); A. Newt. t. c. p. 505 (Spitzbergen, July); Gould, Handb. B. Austr. II. p. 269 (1865); Finsch, New-Guinea, p. 181 (1865); Pelz. Reis. Novara, Vög. p. 117 (1865: Stewart Isl., Sept.); Godm. Ibis, 1866, pp. 100, 107 (Azores, June); Salvin, t. c. p. 190 (Guatemala, both coasts); Schl. P. Z. S. 1866, p. 425 (Mayotte: Réunion); Degl. & Gerbe, Orn. Eur. II. p. 154 (1867); Loche, Expl. Sci. Algér., Ois. II. p. 28 (1867: migrant); Scl. P. Z. S. 1867, p. 339 (Chili); Hartl. t. c. p. 83 (Pelew Isl.); Lawr. Ann. Lyc. N. Y. VIII. p. 100 (1867: Sombrero); Baird, Ibis, 1867, p. 286; Beavan, t. c. p. 332 (Andamans); E. Newt. t. c. pp. 350, 359 (Seychelles, Feb.); Hartl. P. Z. S. 1867, p. 831; Finsch & Hartl. Faun. Centralpolyn. p. 197 (1867); Brown, Ibis, 1868, p. 453 (Portugal); Dyb. & Parvex, J. f. O. 1868, p. 337 (Dauria); Schl. & Poll. Faune Madag. Ois. p. 130 (1868); Hartl. & Finsch, P. Z. S. 1868, pp. 8, 118 (Pelew Isl.); Borggr. Vogelf. Norddeutschl. p. iii (1869); Doderl. Avif. Sicil. p. 179 (1869: on passage); Malmgr. Ibis, 1869, p. 230 (Amsterdam Isl., Spitzbergen); Droste, Vogelw. Borkum, p. 157 (1869); Sundev. Œfr. K. Vet.-Akad. Forh. Stockh. 1869, p. 588 (S. Bartholomew); id. t. c. p. 602 (Porto Rico); Dall & Bann. Trans. Chicago Acad. I. p. 290 (Yukon mouth); Dole, Proc. Bost. Soc. N. H. XII. p. 304 (1869: Sandwich Isl.); Godman, Azores, p. 33 (1870: probably breeds); Fritsch, Vög. Eur. tab. 34, figs. 2, 8 (1870); Elwes & Buckley, Ibis, 1870, p. 330 (Turkey); Swinh. t. c. p. 361 (Hainan); Marie, Actes Soc. Linn. Bordeaux, XXVII. p. 328 (1870); Finsch & Hartl. Vög. Ostafr. p. 662

(1870); Scl. & Salv. P. Z. S. 1870, p. 323 (Indefatigable and Bindloe Islands); Gray, B. West Scotl. p. 266 (1871); Salvad. Faun. Ital. Ucc. p. 207 (1871); Saunders, Ibis, 1871, p. 387 (S. Spain); Scl. t. c. p. 360 (Sandwich Isl.); Pelz. Orn. Bras. p. 297 (1871: Piehy, Feb.: Cajutuba, Feb.: Garapē, March: Para, Nov.); Hartl. & Finsch, P. Z. S. 1872, p. 89 (Mackenzie Isl.); id. t. c. p. 104 (Uap.); Harting, Hanb. Brit. B. p. 45 (1872); Heugl. Ibis, 1872, p. 62 (Novaya Zemlya); Godman, t. c. p. 221 (Flores, Azores); Finsch, Abhandl. nat. Ver. Bremen, III. p. 62 (1872: Alaska); Coues, Key N. Amer. B. p. 246 (1872); Finsch, J. f. O. 1872, p. 52 (Samoa); Holdsw. P. Z. S. 1872, p. 472; Scl. & Salv. Nomencl. Av. Neotr. p. 143 (1873); Buller, B. N. Zeal. p. 221 (1873); Gould, B. Gt. Brit. IV. pl. 60 (1873); Tacz. J. f. O. 1873, p. 101 (Kultuk: Darasun); id. t. c. 1874, p. 336; Alst. & Harvie-Brown, Ibis, 1873, p. 67 (Archangel); Walden, t. c. p. 317 (S. Andaman); Brooke, t. c. p. 338 (Sardinia); Hayes Lloyd, t. c. p. 416 (Kathiawar); Elliot, Rep. Prybilov Isl. no. 406 (1873: not breeding); Tacz. P. Z. S. 1874, p. 560 (Chorillos, Peru); Sundev, Œfr. K. Vet.-Akad. Stockh. 1874, p. 20 (Spitzbergen); Coues, B. N.-West, p. 459 (1874); Wright, Ibis, 1874, p. 238 (Gozo, May); Durnf. t. c. p. 404 (N. Frisian Isl.); Lawr. Mem. Bost. Soc. N. H. II. p. 308 (1874: Rio Zacatula); Saxby, B. Shetl. p, 170 (1874: breeding); Walden, Tr. Z. S. VIII. p. 91 (1874: Celebes); Salvad. Ucc. Born. p. 320 (1874: Sarawak); Le Messur. Str. F. III. p. 380 (1875: Chinnee Creek, Sind); Blyth, B. Burm. p. 154 (1875: Arakan; Finsch, Journ. Mus. Godeffr. Heft VIII. p. 32 (1875); Fallon, Ois., Belg. p. 155 (1875); Irby, Orn. Gibr. p. 163 (1875); Dresser, B. Eur. VII. p. 555, pl. 532 (1875); Danf. & Harvie-Brown, Ibis, 1875, p. 420 (Stell River); Whitmee, t. c. p. 446; Gundl. J. f. O. 1875, p. 331 (Cuba); Layard, P. Z. S. 1875, p. 440 (Viti Levu); id. P. Z. 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Ibis, 1880, p. 190 (Siberia, 70½° N. lat.); Finsch, t. c. pp. 220, 330, 332 (Jaliut Isl., Aug.); id. t. c. p. 432 (Gilbert Isl.); Elliot, Monogr. Seal Isl. p. 129 (1880); Cory, B. Bahamas, p. 151 (1880); Finsch, P. Z. S. 1880, p. 576 (Ruk. Isl.); Butler, Cat. B. S. Bomb. Pres. p. 74 (1880: cold weather visitant); Vidal, Str. F. IX. p. 82 (1880: S. Konkan, April); Sharpe, P. Z. S. 1881, p. 15 (Talcahuano); Scl. t. c. p. 451 (Rotumeh); Meyer, Verh. z.-b. Ges. Wien, XXXI. p. 767 (1881: Sumba); Scl. Rep. Voy. "Challenger," II. Birds, p. 33 (1881: Admiralty Isl.); W. A. Forbes, t. c. p. 92 (Raine Islet); Bocage, Orn. Angola, p. 434 (1881: Loango); A. & E. Newt. Handb. Jamaica, p. 115, 1881); Finsch, Ibis, 1881, pp. 105, 109 (Kushai); id. t. c. p. 115 (Ponapé, March); id. t. c. p. 246 (Nwalabo, July); Salvad. Orn. Papuasia, II. p. 298 (1882); Layard, Ibis, 1882, pp. 533, 544 (New Caledonia); Kelham, Ibis, 1882, p. 11 (Moar River, Malacca, April: Pulo Nongsa, Sept.); Seeb. t. c. p. 380 (Archangel, rare summer visitor); H. W. Elliot, t. c. p. 478 (Prybilov Isl., July); E. L. & L. C. Layard, t. c. pp.

533, 544 (Duck Isl., N. Caledonia); Bean, Proc. U. S. Nat. Mus. III. p. 163 (1882); Cocks, Zool. 1882, p. 24 (Is. Fjord, Spitzbergen, Aug.); Elliot, Rep. Fur Seal Isl. Alaska, p. 129 (1882: not breeding, seen at sea 800 miles W. of Straits of Fuca); Tacz. Bull. Soc. Zool. de France, VIII. p. 339 (1883: Kamtschatka); B. O. U. List. Br. B. p. 161 1883); Booth, Rough Notes, Vol. III. (1883); Saunders, ed. Yarr. Brit. B. III. p. 289 (1883); Seeb. Ibis, 1883, p. 29 (Shores of Black Sea); Irby, t. c. p. 187 (Santander, May, June, Nov.); Oates, Handb. B. Burm. II. p. 376 (1883: Pegu, Sept.); Salvin, P. Z. S. 1883, p. 429 (Paracas Bay, Oct.); Bakist. Amend. List B. Japan, p. 11 (1884: Japan generally); Bogd. Consp. Av. Imp. Ross. p. 77 (1884); Radde, Orn. Cauc. p. 421 (1884: Lenkoran, April, May); Murray, Vertebr. Faun. Suid, p. 233 (1884: Karchi); Finsch, Vög. der Südsee, p. 86 (Marshall, Gilbert Isl., Carolines); Chapm. Ibis, 1884, p. 99 (Spain, Sept.); Tristr. t. c. p. 168 (S. Domingo); Sharpe, ed. Layard's B. S. Afr. p. 671 (1884); Baird, Brewer & Ridgw. Water-B. N. Amer. I. p. 119 (1884); Coues, Key N. Amer. B. 2nd ed. p. 609 (1884); Stejn. Auk, I. p. 173 (1884); Young, t. c. p. 339 (at sea, Lat. 52° N., Long. 25° W.); Merriam, Auk, II. p. 63 (1885: Point Barrow, June, Aug.); Turner, t. c. p. 157 (Nearer Isl., Alaska, summer); Murdoch, Rep. Polar Exp. Pt. Barrow, p. 108 (1885: breeding ?); Guillem. P. Z. S. 1885, p. 417 (Lebarran Isl. N. Borneo); Yerbury, Ibis, 1886, p. 20 (Aden, cold weather); Slater & Carter, t. c. p. 49 (North Iceland, breeding); Salvin, t. c. p. 178 (Brit. Guiana); Gigl. Avif. Ital. p. 377 (1886); Pleske, Uebers. Säug. u. Vög. Kola Halbinsel, p. 329 (1886); Tacz. Orn. Pérou, III. p. 349 (1886); Saunders, P. Z. S. 1886, p. 336 (Diego Garcia, Oct.); Tait, Ibis, 1887, p. 386 (Portugal, April, Sept. breeds); Salvad. Elench. Ucc. Ital. p. 213 (1887); Reid, Str. F. X. p. 452 (1887: Lucknow, cold weather); Hume, t. c. p. 452, note (regular migrant); Gigl. & Salvad. P. Z. S. 1887, p. 585 (Olga Bay, Corea, Sept.); Buller, B. New Zeal. 2nd ed. II. p. 14 (1888); Ramsay, Tab. List. Austr. B. p. 20 (1888); Sharpe, Ibis, 1888, p. 203 (Palawan); Seeb. t. c. p. 348 (Gt. Liakoff Isl., June); id. Geogr. Distr. Charadr. p. 410 (1888); Salvin, Ibis, 1888, p. 379 (Cozumel Isl.); Feilden, t. c. p. 492 (Barbados, Aug., Sept.); Pleske, Mém. Acad. Imp. St. Pétersb. (7) XXXVI. p. 50 (1888: Tschinas, Sept.); Everett, Journ. Straits Branch Asiat. Soc. 1889, p. 205; id.

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Arenaria morinella, W. Palmer, Fur Seals and Fur Seal Isl. N. Pac. Oc. III, pp. 408–412. (1899).

General description.

Size. — Adult male (P. U. O. C. 5596 ♂, 12 May, 1881, Cobbs Island, Virginia. W. E. D. S.)

Total length, about 8 inches.
Wing, 6.2 inches.
Culmen, .95 inch.
Tail, 2.3 inches.
Tarsus, 1.0 inch.

The adult female averages a trifle larger in size than the male.

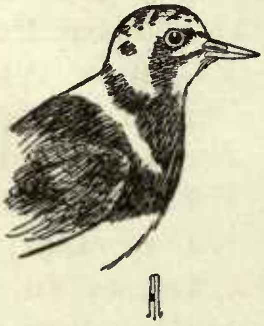
Color. — Adult male (breeding plumage, P. U. O. C. 5596).

General color above, black mottled with bright chestnut; the head white striped with black. Below white, with a large area of black on the chest and sides of the neck.

Head: Crown, forehead and occiput white; the crown streaked with black. The base of the forehead black, extending into a narrow frontal line reaching to the eyes on either side, and widening below and behind into a crescent which runs into the black stripes of the malar region, and by them is connected with the black regions of the sides of the throat, the chest and breast. Above this black a band of white which unites with a broad white eyebrow and extends backward over the ear coverts. A white loral patch, separated from the white throat by a black line.

Neck: Hind neck white, with some black mottling. Sides of neck and fore neck black; throat white.

Fig. 144.



Arenaria interpres in adult plumage about to breed. P. U. O. C. 5596. One half natural size.

Back: Mantle black, mixed with bright chestnut or bright chestnut and black feathers. Scapulars chiefly chestnut, the outer areas irregularly marked and terminated with black. Accessory scapular plumes white. The entire back below the mantle including the rump white. Upper tail coverts chiefly black, the longer ones white.

Tail: Rectrices black with white bases, and tipped with white, except that in very old birds this white tip is not present on the central pair. The black of the rectrices diminishing in area toward the outer feathers forms a band, obvious when the tail is spread.

Wing: Lesser upper coverts dusky, margined conspicuously with white for the most part. Median upper coverts chiefly chestnut, sometimes mottled slightly with black. Greater coverts dusky, narrowly edged and broadly terminated with white. Bastard wing and primary coverts black, the inner coverts tipped with white. Primaries black with white shafts, the inner ones with white bases and tips. Secondaries chiefly white, becoming black toward the ends of the feathers, these black areas decreasing toward the innermost secondaries leaving many of the inner feathers of the group immaculate. The innermost secondaries black, mottled with bright chestnut.

Lower parts: Throat and under surface of the body from the center of the chest backward pure white. A malar line, the sides of the neck, and breast black. The white of the neck defining this area as a crescent above, and the white of the center of the chest giving the black region a crescentic outline below. Under wing coverts and axillaries pure white. The quills have an ashy white aspect from below.

Bill, black.

Tarsi reddish orange.

Feet and toes reddish orange.

Iris deep hazel brown.

Adult Female. — (Breeding plumage, P. U. O. C. 5604, Cobbs Island, Virginia, 24 May, 1881. W. E. D. S.)

Similar to the male, but with all the colors duller. The white of the crown much obscured with dusky and rufous, as is the hind neck. The chestnut of the mantle and wings duller. The black areas of the sides of the head, breast and chest not so well defined or intense.

Adults in Winter. — In winter the adult birds are dusky brown, showing little or no trace of the bright chestnut of the nuptial dress. The edges of the feathers are ashy brown on the back and wings. The head is colored like the back, and the upper surface, neck and sides are ashy brown with dusky centers to the feathers. The sides of the face are brown, shaded with a varying degree of white on the ear coverts. The black areas are defined on the cheeks and throat and breast, but are somewhat obsolete. The white crescentic bands on the neck are replaced by patches of ashy brown. (P. U. O. C. 3907, ♂ ad., Gulf Coast Florida, 26 December, 1879. W. E. D. S.) (Fall and early winter.)

Young of the year. — Similar to adults in winter, but with all the feathers of the back and wings *edged with sandy rufous* and those of the head *streaked* with sandy buff. The tail feathers are white with a broad subterminal area of black on each feather, decreasing in extent toward the outermost rectrices, and *all the feathers of the tail tipped with sandy buff.* The black markings of the sides of the head, neck and breast are clearly indicated in pattern by mottled, dusky feathers, with ashy tips. The crescentic band on the neck, white in the adult breeding birds, is replaced by a band of similar shape but dull sandy buff in color. (P. U. O. C. 3903 ♂, coast of Maine, August, 1876. N. C. Brown.)

The difference in appearance of adults in winter and young birds in the first full plumage "consists in the sandy-buff margins to the feathers of the upper surface, which are very distinct in the latter (first full plumage) at first. Afterward they become abraded, and then there is scarcely any distinguishing mark between the winter plumages of the adult and young. In the spring the red plumage is very rapidly acquired, and I believe that it is gained quite as much by change in the pattern of the feather as by direct moult." (Sharpe, Cat. Bds. Brit. Mus., XXIV, p. 98, 1896). "Male: Talcahuano, September 9, 1879. Iris brown; bill horn-colour legs and feet red." Sharpe, P. Z. S., 1881, p. 15.

Geographical Range.—Nearly the whole world, but chiefly on sea coasts.

So far as known, *Arenaria interpres* has not been taken in Patagonia, but it seems probable that it occurs in the area under consideration. The citations from the eastern coast of South America indicate the proximity of the species, and its well known nomadic habits point to its being recorded upon a more careful and thorough investigation of the Patagonian region. Therefore it is included in this work.

The nearest points of record are in Chili and Brazil, and from islands in the South Atlantic, Talcahuano, Chili, Cajutuba and Bahia, Brazil, and the Galapagos Islands.

"About the first week in June the Turnstone deposits its eggs, its nest being a mere depression in the soil, sometimes sparingly lined with a few grass-bents, the locality selected being usually, if not always, a sandy or rocky soil. On the island of Rügen, Naumann says, it breeds regularly in sandy flats covered with heath and a few scrubby juniper bushes, and also in bare sandy places; and Mr. R. Collet writes respecting its nidification on the Norwegian coast as follows: 'The last few years I have examined a considerable number of the nests of this species, in particular on the coast of Namdalen in June, 1871. They are mostly built under large stones, or beneath broad-leaved plants (*Archangelica littoralis*, or juniper bushes); and several pairs were generally found breeding in close proximity. The eggs, invariably four in number, were quite fresh in the middle of June. In their breeding-haunts the birds exhibited great alarm, but did not, like the *Charadrii*, feign to be wounded. Incubation spots were found in both sexes. The stomachs of those examined contained small coleoptera, the young of Littorinæ, small crustaceans, coarse gravel and scales of fishes, the latter perhaps swallowed accidentally.'

"I possess a series of the eggs of this species from Sweden, Norway, Finland, and Denmark, which are dull greenish grey in ground-colour, and are more or less spotted and blotched with dull purplish underlying shell-markings, and dark brown overlying surface-blotches, some having these latter small and closely scattered over the surface of the shell, whereas in others they are larger and more scantily strewn. One egg is dull light olive-green, with but few markings, except at the larger end, where it is rather heavily blotched." (H. E. Dresser, Birds of Europe, Vol. VII. p. 563 (1871–1881.)

Subfamily *HÆMATOPODINÆ.*

Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 105 (1896); id., Hand-List Bds. I. p. 147 (1899).

Genus HÆMATOPUS Linnæus.

	Type.
Ostralega, Briss. Orn. V. p. 38 (1760).	*H. ostralegus.*
Hæmatopus, Linn. Syst. Nat. I. p. 257 (1766); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 105 (1896); id., Hand-List Bds. I. p. 147 (1899)	*H. ostralegus.*
Melanibyx, Reichenb. Nat. Syst. Vög. p. XII (1852)	*H. moquini.*

Geographical Range. — Almost cosmopolitan.

HÆMATOPUS LEUCOPUS Garnot.

Hæmatopus leucopodus, Garn. Ann. Sci. Nat. VII. p. 47 (1826: Falkland Islands).

Ostralega leucopus, Garn. & Less. Voy. Coq. Zool. I. p. 721 (1826).

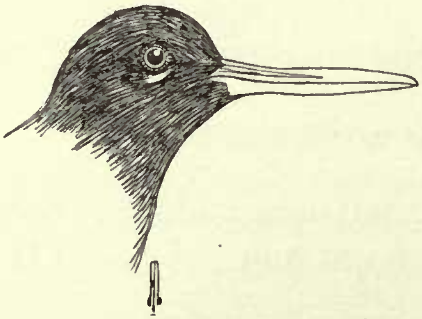
Hæmatopus luctuosus, Cuv. Règn. Anim. I. p. 584 (1829); Schl. Mus. Pays Bas, IV. Cursores, p. 74 (1865: Falkland Islands); Gray, Hand-l. B. III. p. 21, no. 10058 (1871: Tierra del Fuego).

Hematopus arcticus, Jard. ed. Wils. Am. Orn. III. p. 35, pl. LXIV. (1832); Gray, Gen. B. III. p. 547 (1847).

Hæmatopus leucopus, Gray, List B. Brit. Mus. Grall. p. 72 (1844: Tierra del Fuego: Falkland Islands); id. Gen. B. III. p. 547 (1847); Scl.

P. Z. S. 1860, p. 386 (East Falklands); Abbott, Ibis, 1861, p. 156 (Falkland Islands, breeds in Oct.); Scl. & Salv. Nomencl. Av. Neotr. p. 143 (1873); iid. P. Z. S., 1878, p. 437; iid. Voy. Chall. II. Birds, p. 108 (1881: Penguin Isl.: Elizabeth Isl.: Tom Harbour); Sharpe, P. Z. S., 1881, p. 15 (Cape Sambo, Trinidad Channel, March; west coast Patagonia: Tom Bay, Jan.: Hugh Bay, Dec.); Seebohm, Geogr. Distr. Charadr. p. 306 (1888); Burm. Ann. Mus. Nac. Buenos Aires, III, part X. p. 246 (1888: Falklands); Ridgw. Proc. U. S. Nat. Mus. XII. p. 136 (1889: Elizabeth Island); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 121, 330 (1891); Sharpe, Cat. B. Brit. Mus. XXIV. p. 113 (1896); Schalow, Zool. Jahrb. Suppl. IV. p. 663 (1898: Punta Anegada, Str. Magell., Jan.); Sharpe, Hand-list, B. I. p. 147 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 625 (1900: Penguin Rookery, Feb.: Rio Pescado, May); Carbajal, La Patagonia, II. p. 273 (1900); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Patagonia); Nicoll, Ibis 1904, p.32; id Zool. 1904, p. 401; Crawshay, B. Tierra del Fuego, p. 123 (1907); Useless Bay, Sept. 2; San Sebastian Settlement, Oct. 22 (1904) breeding, eggs procured.
? *Hæmatopus bicolor*, Vincig. Boll. Soc. Geogr. Ital. (2) IX. p. 798 (1884).

FIG. 145.



Hæmatopus leucopus. P. U. C. O. 7805. Adult male. One third natural size.

GENERAL DESCRIPTION.

Size.—Adult male. (P. U. O. C. 7805, Montez Ranch, near Rio Coy, Patagonia, 1 October, 1896. J. B. Hatcher.) Total length, about 16.6 inches.

Wing, 10.4 inches.

Culmen, 3.05 inches.

Tail, 4.05 inches.

Tarsus, 1.75 inches.

The adult female is appreciably larger than the adult male.

Color.—Adult male (cited above). General color above black, with a white area on each closed wing and on the upper tail coverts. Below, black as far back as the chest, thence white.

Head: Entirely glossy black, except for a small crescentic white spot below the eye.

Neck: Entirely glossy black.

Back: Mantle, lower back, and rump glossy black; *the upper tail coverts* white.

Tail: Terminal portion of rectrices glossy black, the basal half pure white, the color of the shafts matching the color of each area.

Wings: The upper coverts glossy black. The secondary coverts with broad white tips. Primaries black, *with no white along the shafts or on the inner webs.* All the secondaries except the extreme inner ones pure white.

Lower parts glossy black from the bill back to the breast, where the black abruptly terminates. The remainder of the under surface white. Most of the under wing coverts black, the axillaries white.

Bill, "orange red."

Feet, "grey."

"Iris and eyelid brilliant yellow" (data of color of soft parts quoted from Dr. Coppinger).

The female is similar to the male in color.

636, male, Penguin Islands.

"Bill red, legs flesh, eyes orange."

653, female, } Tom Harbour.
654, young, }

"Eyes orange; stomach had mussels."

"Eyes of young were brown, bill of adult red, feet flesh-coloured; bill of young brown."

661, female, Tom Harbour.

720, male, Elizabeth Island.

"Eyes yellow, feet flesh, bill red, eyelids red; stomachs had mussels." (Sclater & Salvin, on Birds Antarctic America, Voy. H.M.S. "Chall."—No. IX. pp. 437–438, 1878.)

Immature birds are similar to the adults, but having the black areas more dusky and rusty margins to all the feathers of the upper parts. The white area extends well up on the breast.

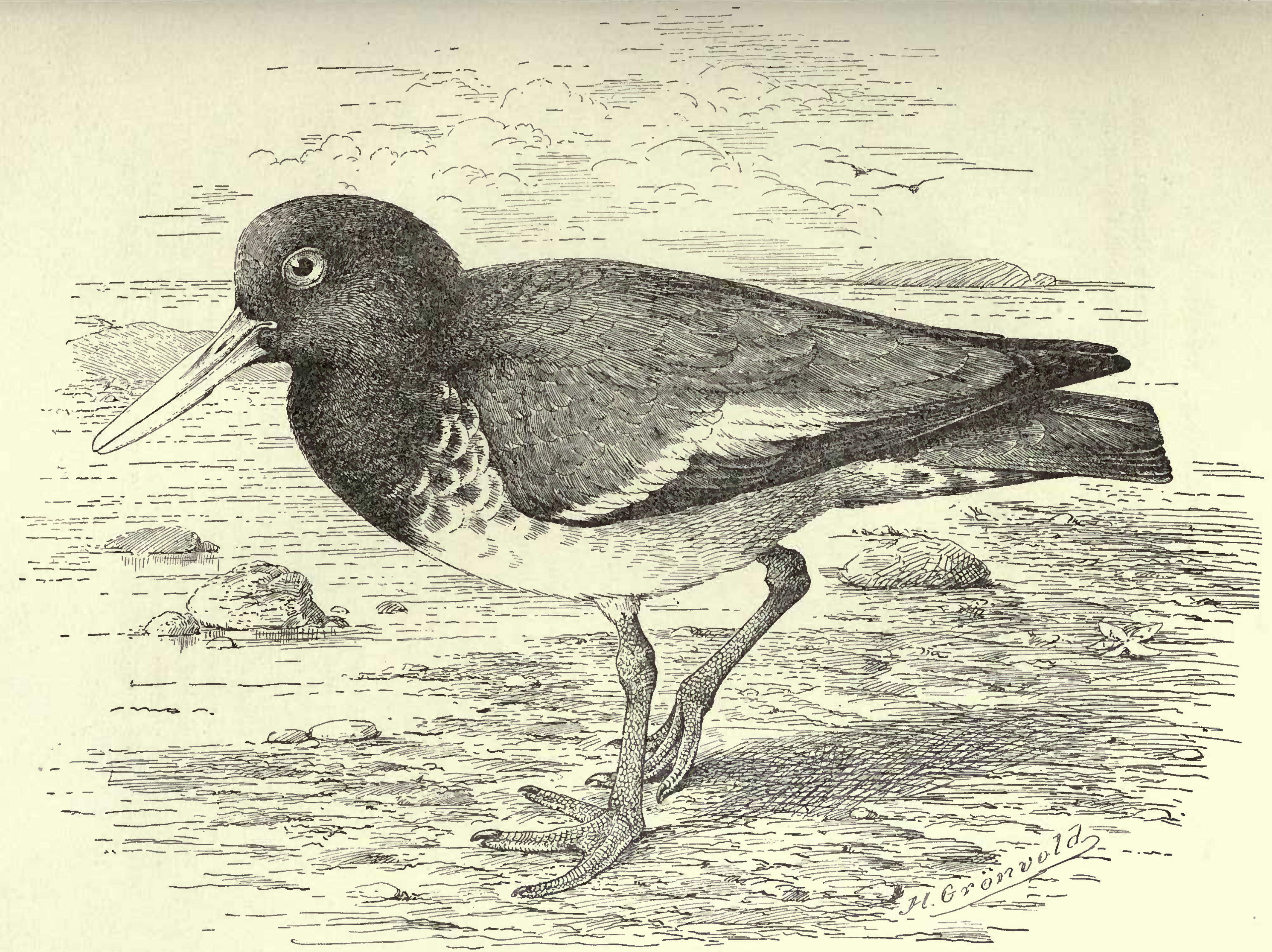
Geographical Range.—The Falkland Islands, lands about the Straits of Magellan and north on the coasts of Patagonia to at least 51° South Latitude.

The bird taken by the naturalists of the Princeton Expeditions was procured near the mouth of Rio Coy, which appears to extend its range farther north than heretofore known, and also some short distance from the coast.

This genus, so generally distributed, is found on almost every seacoast of both continents. In all this wide distribution there does not appear to be any great diversity of habit among the many species that are described. The birds are generally not gregarious, but are usually found in pairs. They seem in most regions to prefer sandy beaches, particularly such as have dunes adjoining, and in such localities they nest.

From the fact that they frequent these places, as well as their known habit of feeding on the smaller crustaceans, it seems improbable that oysters form any appreciable part of the food of these birds. On the coasts of Virginia and New Jersey, adjacent to large areas of oyster beds, many of which are exposed at low water, Mr. Scott has never seen the Oyster-catchers of these shores leave the sea-beaches and sand dunes to forage for the bivalve that has given a name to the several representatives in many parts of the world. That the bill is used for boring in the sand after small shell fish and crustaceans is amply attested by the tracks left by a pair of feeding birds.

The nest is little more than a hollow in the sand within the border of the dunes, and here three eggs are laid. These are large for the size of the bird; almost as big as those of an ordinary domestic fowl. From the nest to the nearest point of the sea a path is formed by the two parent birds, which, as time goes on, becomes a conspicuous track that will serve the searcher to discover the nest. This trail is formed by the birds going to feed at low water, the time spent at the nesting site being during the higher stages of the tide.



Hæmatopus durnfordi Sharpe. ⅔ natural size.

The British Museum has received examples from Lake Blanco, Chubut, collected by J. Koslowsky, during the months of September, October and November.

HÆMATOPUS DURNFORDI Sharpe.

Hæmatopus palliatus, Darwin (nec Temm), Voy. "Beagle" Birds, p. 128 (1841: Rio de La Plata); Durnf. Ibis, 1878, p. 403 (Tambo Point, mouth of Chupat river, Dec., breeding); Scl. & Huds. Argent. Orn. II. p. 176 (1889).

Hæmatopus durnfordi, Sharpe, Cat. B. Brit. Mus. XXIV. p. 117, pl. VI. (1896: Patagonia); id. Hand-list B. I. p. 147 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Patagonia).

GENERAL DESCRIPTION.

Size.—Adult. Total length, 16 inches.

Wing, 9.7 inches.

Culmen, 2.55 inches.

Tail, 3.6 inches.

Tarsus, 1.9 inches.

Color.—Adult. General color above chocolate brown on body, changing abruptly into black on the neck, which color is continuous to the bill. Below, black from the bill to the chest, then abruptly white, which color prevails on the rest of the lower surface, except on the under tail coverts which are blackish brown.

Head entirely black. *No white below eye.* Neck entirely black.

Back, mantle, lower back, rump and *upper tail coverts chocolate brown.*

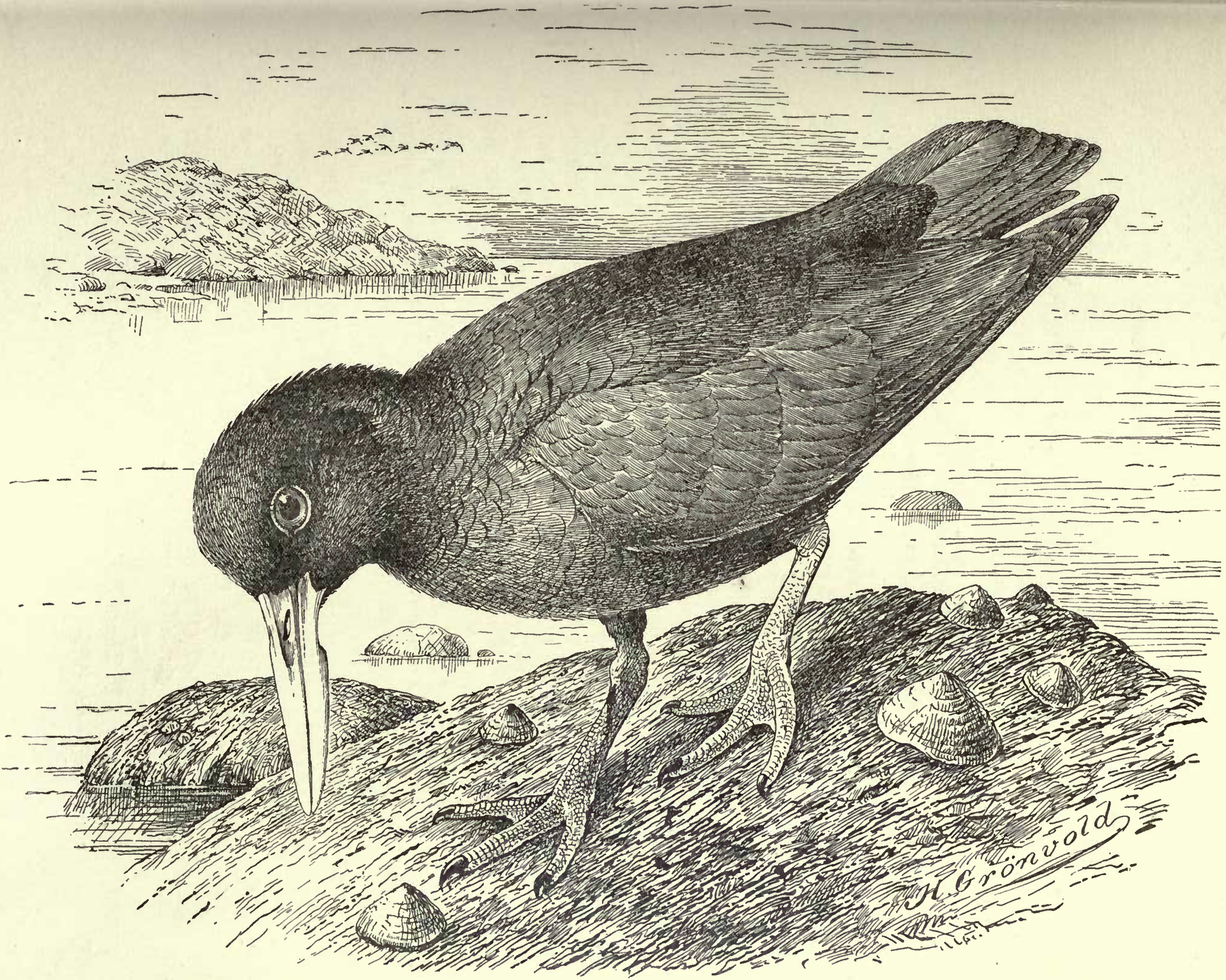
Tail blackish brown without prominent bases of white to any of the feathers.

Wings: The *white area on the wing comparatively small.* None of the primaries white shafted or with white areas on the webs. The greater coverts tipped with white, this forming only a narrow band on the closed wing. All the secondaries have some black and most of them a great deal of that color at their ends on the outer webs.

Lower parts: Black from the bill backward to the chest. Then abruptly white to the under tail coverts, which are mostly shaded heavily with blackish brown.

"Bill dark pink; legs and feet greenish yellow; iris light orange" (H. Durnford).

Fig. 147.



Hæmatopus ater (Lesson). ⅔ natural size.

Geographical Range: Patagonia.

"Several pairs were observed on Tambo Point in December and the bird occasionally occurs at the mouth of the Chupat. It was nesting in the former place, but I failed to discover the eggs." (Durnford, Ibis, 1878, p. 403.)

The bird here referred to is the species under discussion, though Durnford referred to it under the head of *Hæmatopus palliatus.*

HÆMATOPUS ATER (Lesson).

Hæmatopus niger, Quoy & Gaim. (nec Pall.), Voy. Uranie, Zool. I. p. 129, pl. 24 (1824: Falkland Is.); Schl. Mus. Pays Bas; IV. Cursores, p. 76 part (1865: Straits of Magellan: Falkland Is.).

Ostralega atra, Less. Traité d'Orn. p. 548 (1831: Falkland Islands).

Hæmatopus ater, Vieill. et Oud. Gal. Ois. II. p. 88, pl. 230 (1834); Cass. & Lawr. B. N. Amer. p. 700 (1858: Coast of Chili); Scl. P. Z. S. 1860, p. 386 (Falkland Is.); Abbott, Ibis, 1861, p. 155 (Falkland Islands, resident, breeds in Nov.); Scl. P. Z. S. 1867, pp. 331, 339 (Chili); Scl. & Salv. Ibis, 1870, p. 499 (Port Laguna, Nov.); Cuningh. Nat. Hist. Str. Magell. p. 123 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 143 (1873: Chili, Patagonia, and Falkland Is.); Durnf. Ibis, 1878, p. 403 (Tambo Point); Scl. & Salv. P. Z. S. 1878, p. 438 (Elizabeth Isl.); iid. Voy. Chall. II. Birds, p. 109 (1881); Sharpe, P. Z. S. 1881, p. 15 (Port Henry); Salvin, P. Z. S. 1883, p. 429 (San Lorenzo Isl.); Vincig. Exped. Austr. Arg. p. 58 (1883: Isola degli Stati); id. Patag. p. 59; id. Boll. Soc. Geogr. Ital. (2) IX. p. 798 (1884); Tacz. Orn. Pérou, III, p. 351 (1886); Macfarl. Ibis, 1887, p. 205 (San Lorenzo Isl., very common); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Falkland Is.); Scl. & Huds. Argent. Orn. II. p. 176 (1889: Tambo Point, Patagonia); Ridgw. Proc. U. S. Nat. Mus. XII. p. 136 (1889): Elizabeth Isl.); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 119, 330 (1891); Sharpe, Cat. B. Brit. Mus. XXIV, p. 121 (1896); id. Handlist B. I. p. 147 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 624 (1900; Penguin Rookery, Feb.: Rio Pescado, May); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Falkland Islands); Crawshay, B. Tierra del Fuego, p. 125 (1907): Admiralty Sound, January, 19, 1905.

Hæmatopus unicolor, Gould (nec Wagl.), P. Z. S. 1859, p. 96 (Falkland Islands, eggs).

Hæmatopus niger ater, Baird, Brewer, & Ridgw. Water Birds N. Amer. I. p. 109 (1884); Seebohm, Geogr. Distr. Charadr. p. 311 (1888).

Melanibyx ater, Heine & Reichen. Nomencl. Mus. Hein. p. 337 (1890: Chili).

GENERAL DESCRIPTION.

Size.—Adult. Total length, about 16 inches.

Wing, 10.7 inches.

Culmen, 2.8 inches.

Tail, 3.7 inches.

Tarsus, 2 inches.

Color.—Adult male. General color black or deep chocolate brown throughout.

Head: Black.

Neck: Black.

Back: Deep chocolate brown.

Wing: Deep chocolate brown.

Tail: Deep chocolate brown.

Lower Parts: Black like the head and neck, on the breast and imperceptibly shading into a darker brown than that of the upper parts.

"Bill dark pink; legs and feet greenish yellow; iris dark orange" (H. Durnford). The bill is very much deeper and more compressed than in any of the close allies of the species. At the end the shape is that of a thin blade, reminding one of the bill of *Rhynchops*.

Immature and young birds are much browner than adults and the feathers of the brown parts of the plumage are edged with sandy buff. The head and neck as well as the breast are deep sooty.

721, female, Elizabeth Island.

"Eyes yellow, feet flesh, bill red, eyelids red; stomach had mussels." Sclater & Salvin, on Birds Antarctic America, Voy. H. M. S. "Chall."—No. IX. p. 438, 1878.

"Female: Fort Henry, January 29, 1879. Eyes black; eyelids orange-red; bill orange-red; feet grey." Sharpe, P. Z. S. 1881, p. 15.

"Two species of *Hæmatopus*, I may here observe, are common throughout the Strait of Magellan, and on the west coast of South America as far north as Chiloe. The plumage of one of these (*H. ater*) is wholly black, while that of the other (*H. palliatus*) is pied with black and white, so as closely to resemble the British *H. ostralegus*. We found them both to be very good eating, and they were therefore entered in the game-book which was kept by one of our number as a register of the skill of the sportsmen. Like many other *Grallæ*, they are possessed of tolerable swimming powers." (Cunn. Nat. Hist. Str. Magell., 1871, p. 123.)

Subfamily *LOBIVANELLINÆ*.

Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 122, 1896; Sharpe, Hand-list Bds. I. p. 148, 1899.

Genus OREOPHILUS Jardin & Selby.

	Type.
Oreophilus, Jard & Selby, Ill. Orn. III. pl. 151 (1835); Sharpe Cat. Bds. Brit. Mus. XXIV. p. 123 (1896) Sharpe, Hand-list Bds. I. p. 148 (1899)	*O. ruficollis.*
Dromicus, Less. Echo du Monde Savant, 1844, col. 616 .	*O. ruficollis.*

Geographical Range.—Peculiar to Southern South America and the Falkland Islands.

Oreophilus ruficollis (Jardin & Selby).

Charadrius ruficollis, Wagl. Isis, 1829, p. 653, ex Licht. Mus. Berol.

Oreophilus totanirostris, Jard & Selb. Ill. Orn. III. pl. 151 (1835: Andes of Chili); Darwin, Voy. Beagle, Birds, p. 125 (1841: Maldonado: Valparaiso); Fraser, P. Z. S. 1843, p. 117 (Chili, rare); Des Murs in Gay's Hist. Chil. Zool. I. p. 399 (1847); Hartl. Naum. 1853, p. 221 (Chili); Huds. P. Z. S. 1872, p. 549 (Rio Negro); Cab. J. f. O. 1878, p. 199 (Sierra de Cordova); Doering, Expl. al Rio Negro, Zool. p. 56 (1882: Rincon Grande: Rio Colorado); Burm. An. Mus. Nac. Buenos Aires, III. part X. pp. 246, 319 (1888: North and Central Patagonia).

Dromicus lessoni, Less. Echo du Monde Savant coll. 617. (1844.)

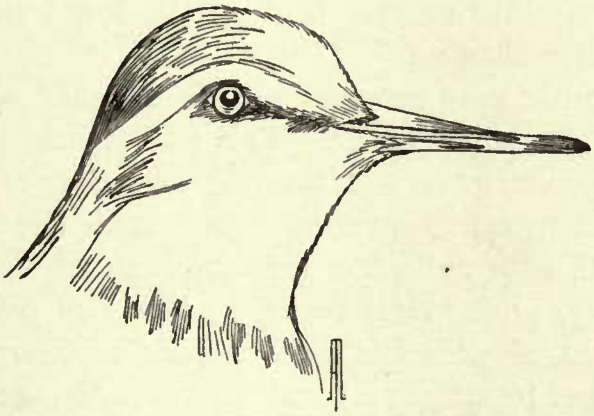
Hoplopterus ruficollis, Gray, Gen. B. III. p. 542 (1844).

Oreophilus ruficollis, Licht. Nomencl. Av. Mus. Berol. p. 94 (1854): Scl. P. Z. S. 1867, pp. 331, 339 (Chili); id. & Salv. t. c. p. 989 (Islay, Peru); iid. P. Z. S. 1868, p. 570 (Western Peru); iid. Ibis, 1868, p. 189 (Sandy Bay, Str. Magell. April); iid. Ibis, 1870, p. 499 (Gallegos River, March); Cunningh. Nat. Hist. Str. Magell. p. 474 (1871); Scl. & Salv. Nomencl. Av. Neotr. p. 143 (1873: Patagonia); Durnf. Ibis, 1877, p. 42 (Chupat Valley, Nov.), p. 197 (Buenos Aires); id. Ibis, 1878, p. 402 (Tambo Point, Dec. breeding); Tacz. Orn. Pérou III. p. 347 (1886: Junin); Scl. P. Z. S. 1886, p. 403 (Tarapaca); Scl. & Huds. Argent. Orn. II. p. 174 (1889: Rio Negro, winter); Oust. Miss. Scient. Cap Horn, Oiseaux, p. 116 (1891); Holland, Ibis, 1891, p. 16 (Argent. Rep.); id. Ibis, 1892, p. 210 (Estancia Espartilla, fairly common, April to July); James, New List Chil. B. p. 11. (1892); Sharpe, Cat. B. Brit. Mus. XXIV. p. 123 (1896); Schalow, Zool. Jahrb. Suppl. IV. p. 664 (1898: Concepcion, June: Punta Arenas, Feb.); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Patagonia).

Morinellus totanirostris, Schl. Mus. Pays Bas, Cursores, p. 47 (1863: Santiago, Chili: Bolivia).

Charadrius totanirostris, Seebohm. Geogr. Distr. Charadr. p. 111, pl. 4 (1888).

FIG. 148.



Oreophilus ruficollis. Adult male. P. U. O. C. 7789. Natural size.

GENERAL DESCRIPTION.

Size.—Adult male (P. U. O. C. 7981, Rio Deseado, Patagonia, 29 March, 1898, A. E. Colburn).

Total length, 9.55 inches.
Wing, 6.5 inches.
Culmen, 1.25 inches.
Tail, 2.85 inches.
Tarsus, 1.95 inches.

The sexes do not vary in size, but there is an appreciable variation among the seven individuals of the Princeton collection in this respect that does not correlate with sex.

Color.—Adult male (cited above). General color above sandy ash brown, plain on the head and neck, and much variegated on the mantle, wings and back with deep umber, almost black, and cinnamon buff. Below, the prevailing color is buffy, with a black area on the lower breast, grey on the neck, orange cinnamon on the throat, fading to almost white on the chin.

Head: Crown deep ashy grey with a strong olive tinge, and faint median dusky lines on each feather. Forehead to its base and a broad eyebrow buffy white with a tawny tinge, especially above the ear coverts. This eyebrow is prolonged so as to form an almost complete nuchal band. A black stripe extends from the angle of the bill to the eye, crossing the loral region, and extending for half an inch behind the eye. Forecheeks creamy white shading into ashy grey on the ear coverts.

Neck: Chin creamy white shading into a well defined jugular orange-cinnamon patch. Lower throat and neck ashy grey, tinged with olive and sandy and shading into creamy buff on the lower breast. Hind neck ashy grey with olive shading.

Back: Fore mantle ashy grey, becoming streaked with dark centers to each feather on the mantle proper. This shades into the variegated area between the wings where each feather has dark centres with sandy rufous and sandy grey margins. Lower back and rump olive grey. Upper tail coverts sandy buff, with dull olive grey cross bars.

Tail: Slaty grey, with tawny bases, and tips of pale broad buff. In the slaty grey area of each feather is a dark spot, arrow-shaped on the central rectrices and becoming a band on the outer ones.

Wings: Greater coverts dark brown margined with sandy buff, and with whitish or creamy white at the ends of the feathers, form a more or less distinct wing bar. The lesser and median coverts like the feathers of the middle back. Bastard wing and primary coverts dull greyish brown.

Quills dark brown; the primaries with white along the inner web and with narrow edging at the ends. Shafts of primaries ivory white. The first primary without white on *outer web*, the white area beginning to show on the outer web of the second primary, and increasing in amount on each succeeding primary. The secondaries are dark brown, and have white tips and bases, to the inner ones, which are externally much like the back in color.

Lower Parts: Chin pale creamy or white shading into cinnamon orange on the upper throat, which color shades abruptly into pale olive grey on the upper breast, in turn shading into the general creamy buff of the rest of the under surface. Sharply contrasted in the fore part of this creamy buff region, on the lower chest is a crescentic area of glossy black. Under tail coverts creamy buff with some traces of dull obsolete bars. Under wing coverts and axillaries pure white.

Bill black.

Legs and tarsi flesh color.

Feet and toes blackish.

Iris dark brown.

The sexes do not differ in color.

Geographical Range.—Patagonia northward to the Rio de La Plata; Chili and Peru; the Falkland Islands.

This Plover was met with by the naturalists of the Princeton Expeditions throughout the uplands of Patagonia everywhere, but was particularly common near Cape Fairweather and at points on the Rio Deseado. The series of seven of these birds brought to the University Museum do not vary appreciably in color, but one individual presents a departure in size that is noticeable without detailed measurement.

No. 7789 P. U. O. C. (labelled) male and in adult plumage was taken near Mt. Tigre, Patagonia, 14 August, 1896. The wing of this bird measures 7.1 inches, the exposed culmen 1.4 inches and the tarsus 2.05 inches, a noticeable excess in size above the normal average.

Durnford found the birds breeding at Tambo Point in December, and from his observations the following passage is quoted:

"Partially resident but not numerous in the spring, when many cross the Chupat, going southward. It was nesting on the hills bordering the valley of the Sengel and generally seen throughout our journey. On the 30th December I caught two chicks on Tambo Point; they are pretty little downy things, mottled all over with light and dark chocolate and white.

"The adult has the iris wood-brown, beak black, legs flesh-colour, feet and claws black." (Durnford, Ibis, 1878, p. 402.)

"Another Plover which breeds in South Patagonia and comes north for the winter. On the 18th May, I saw a small bunch in the camp at Sta. Ana, but they were so wild I could not get a shot. They uttered a few whistles, quite different from that of the Golden Plover, on rising. On the following Sunday I saw them again when riding without a gun, but a long search next morning was not rewarded. There is a local specimen in the Museum." (O. V. Alpin, on Birds Uruguay, Ibis, p. 207. 1894.)

	P. U. O. C.	Sex	Date	Locality	Collector
Skin	7789	♂	14 August, 1896.	Near Mt. Tigre, Patagonia.	O. A. Peterson.
"	7790	♂	14 August, 1896.	Near Mt. Tigre, Patagonia.	O. A. Peterson.
"	7979	♂	29 March, 1898.	Rio Deseado, Patagonia.	A. E. Colburn.
"	7980	♂	29 March, 1898.	Rio Deseado, Patagonia.	A. E. Colburn.
"	7981	♂	29 March, 1898.	Rio Deseado, Patagonia.	A. E. Colburn.
"	7982	♂	8 March, 1898.	Rio Chico, Patagonia.	A. E. Colburn.
"	8303	♀	29 March, 1898.	Rio Deseado, Patagonia.	A. E. Colburn.

This species, both adult and young, has been collected at Lake Blanco in the Chubut District by J. Koslowsky during the months of September and November.

Subfamily *CHARADRIINÆ.*

Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 145, 1896; Sharpe, Hand-list Bds. I. p. 159, 1899.

Genus BELANOPTERUS Reichenbach.

Type.

Belanopterus, Reichenbach, Av. Syst. Nat. p. XVIII. (1852); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 163

(1896); Sharpe, Hand-list Bds. I. p. 151 (1899) . *B. cayennensis*,

Geographical Range.—Peculiar to South America.

BELANOPTERUS CHILENSIS (Molina).

Parra chilensis, Molina, Saggio St. Chile, p. 239 (1789).

Vanellus cayennensis, Bridges (nec Gm.), P. Z. S. 1841, p. 94 (Chili); Gray, List B. Brit. Mus. part III. p. 63 (1844: Valparaiso); Des Murs in Gay's Hist. Chil. Zool. I. p. 400 (1847); Hartl. Naum. 1853, pp. 215, 221 (Chili); Burm. La Plata Reise, II. p. 502 (1861: Mendoza); Scl. & Salv. Ibis, 1869, p. 284 (Gregory Bay, Dec.); iid. Nomencl. Av. Neotr. p. 142 pt (1873); Durnf. Ibis, 1877, p. 42 (Chupat Valley, breeding); id. Ibis, 1878, p. 402 (Central Patagonia); Doering, Expl. al Rio Negro. Zool. p. 55 (1882); Burm. An. Mus. Nac. Buenos Aires, III. part X, p. 246 (1888), part XI. p. 319 (1890: banks of the rivers of northern and central Patagonia); Scl. & Huds. Argent. Orn. II. p. 165 part (1889); James, New List Chil. B. p. 11 (1892); Lataste, Actes Soc. Scient. Chile, III. p. cxv (1894: Ninhué, Chilian Cordilleras, May); Carbajal, La Patagonia, II. p. 273 (1900).

Philomachus cayanus, Gould, Voy. Beagle, Birds, p. 127 part (1841).

Philomachus chilensis, Fraser, P. Z. S. 1843, p. 117 (Chili).

Vanellus chilensis, Yarrell, P. Z. S. 1847, p. 54 (Chili); Schalow, Zool. Jahrb. Suppl. IV. p. 666 (1898: Ovalle, Dec.).

Hoplopterus cayanus Scl. (nec Lath.), P. Z. S. 1861, p. 46 (Falkland Islands); Abbott, Ibis, 1861, p. 155 (Stanley, East Falklands); Oust. Miss. Scient. Cap Horn, Oiseaux, p. 289 (1891).

Vanellus cayanus, Cunningh. (nec Lath.), Ibis 1868, p. 490 (Gregory Bay).

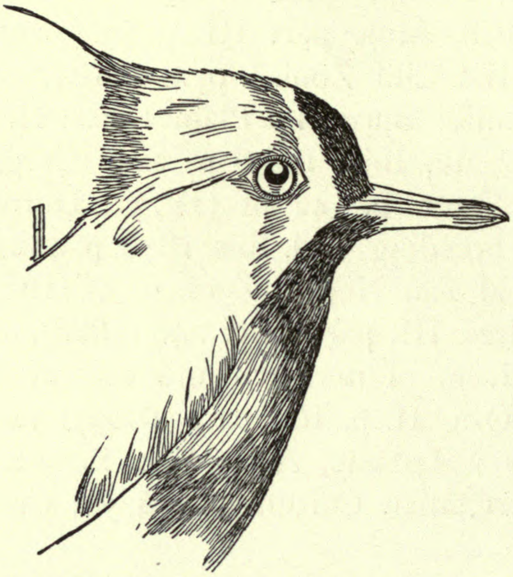
Vanellus occidentalis, Harting, P. Z. S. 1874, p. 451; Scl. & Salv. P. Z. S. 1878, p. 437 (Elizabeth Island); iid. Voy. Chall. II. Birds, p. 108 (1881); Sharpe, P. Z. S. 1881, p. 14 (Pecket Harbour: Talcahuano, Nov.); Tacz. Orn. Pérou, III. p. 335 (1886).

Vanellus cayennensis chilensis, Seebohm, Geogr. Distr. Charadr. p. 218 (1888).

Belanopterus chilensis, Ridgw. Proc. U. S. Nat. Mus. XII. p. 136 (1889: Gregory Bay); Sharpe, Cat. B. Brit. Mus. XXIV. p. 165 (1896);

Lane, Ibis, 1897, p. 302 (San Pedro & San Antonio) Sharpe, Handlist Bds. I. p. 151 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Patagonia); Crawshay, B. Tierra del Fuego, p. 116 (1907): San Sebastian Settlement, Oct., 1904; Useless Bay Settlement, Oct., 1904, breeding, eggs obtained.

FIG. 149.



Belanopterus chilensis. Adult female. P. U. O. C. 7777. About one half natural size.

GENERAL DESCRIPTION.

Size.—Adult male (P. U. O. C. 7776, 16 January, 1898, Guer Aike, Patagonia, A. E. Colburn).

Total length, 14.7 inches.

Wing, 9.5 inches.

Culmen, 1.4 inches.

Tail, 4.7 inches.

Tarsus, 2.7 inches.

The female is appreciably larger.

Total length, 15.75 inches.

Wing, 9.7 inches.

Culmen, 1.3 inches.

Tail, 4.4 inches.

Tarsus, 2.8 inches.

(P. U. O. C. 7774, adult female, near Rio Coy, Patagonia, 14 September, 1898, A. E. Colburn.)

Color.—Adult male (cited). General color above, ashy; grayer on the head, olive on the mantle and wings, shaded with an iridescent metallic gloss, reflecting bronze, green and peacock shades. Lower back grey, rump and tail white, the latter with a broad black subterminal bar.

Lower parts black on chest, breast, neck, throat and chin; white on lower breast and abdomen.

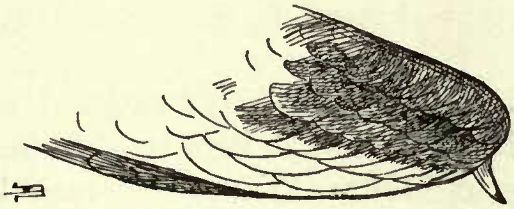
Head: With a long, slender, recurved occipital crest. Forehead black, back as far as above the fore part of the eyes, including most of the loral region. The black defined by a white band crossing the anterior part of the crown and passing down in front of the eyes along the sides of throat and neck. This white is in sharp definition where it touches the black and shades off on its approach to the grey areas into that color. Rest of head, including the crown, occiput, auricular region and sides of face, clear ashy grey. Eyelids with darker grey shading.

Neck: Ashy grey above and on the sides, black below. The black divided from the ashy by a white streak or band as described on the head.

Back: Chiefly ashy grey. The mantle and parts of the scapular region with a strong olive tinge and shaded with iridescent metallic green bronze. Lower back and rump clear ashy gray. Upper tail coverts pure white.

Wings: With a long sharp spur at the carpal joint. Yellow in color. The lesser coverts purplish blue black, glossed with bronzy metallic green. Median and greater wing coverts pure white; the inner coverts shading into ashy. Bastard wing, primary coverts and primaries black. Outer secondaries black, the inner secondaries ashy brown or whitish at their bases and the innermost ones wholly ashy brown, glossed with dull metallic bluish green.

FIG. 150.



Belanopterus chilensis. Diagram of wing showing spur. Reduced.

Tail: Pure white for about the basal two thirds, then a broad black band an inch and three quarters wide, and a terminal white band about half an inch wide. The black band is widest on the central pair of feathers, gradually narrowing a little on each pair so as to be about an inch and a quarter wide on the outer rectrices.

Lower parts: Black from the chin to the posterior line of the breast, thence abruptly white for the remainder of the lower surface, including the under-wing coverts and axillaries. Primary quills black below; secondaries, the outer black below, the inner ones with a decreasing amount of that color and the innermost showing no black.

Bill: Reddish at base shading into dusky at tip.

Legs and feet deep brown flesh color, lightest on the bare portion of the leg and pinkish at the joint, shading into duller on the tarsi and feet.

Iris: Brilliant red (J. B. Hatcher).

The adult female does not differ from the adult male in color; with recurved crest and wing spur.

Immature Birds.—(P. U. O. C. 7778, male, Port of Gallegos, Patagonia, 10 January, 1898, A. E. Colburn.) Have all the color pattern of the adults plainly indicated even to the metallic shading and iridescence. Each feather of the mantle and back of neck and crown, as well as the coverts of the wing are tipped with sandy buff, and the larger coverts are also barred with this color near their ends. The black of the forehead is almost obsolete on account of the sandy tips, but can readily be seen on raising the feathers. The chin and upper throat are also suffused by sandy tips to each feather. The crest is indicated and the spurs on the wings present, though short and dull. No other suffusions. This bird is in the *first plumage*, and it is of great interest to see the long down filaments on two of the outer tail feathers, the rest of the down plumes being worn away.

Geographical Range.—Patagonia, the Falkland Islands, Chili and Peru.

"I met with this bird from latitude 30° to 45° S. on both sides of South America. In La Plata it is called 'Teru-tero' in imitation of its cry; and in Chile, according to Molina, 'Thegel.' These birds, which in many respects resemble in habits our peewits (*Vanellus cristatus*), frequent, generally in pairs, open grassy land, and especially the neighbourhood of lakes. As the peewit takes its name from the sound of its voice, so does the teru-tero. While riding over the grassy plains, one is constantly pursued by these birds, which appear to hate mankind and, I am sure deserve to be hated, for their never-ceasing, unvaried, harsh screams. The stillness of the night is often disturbed by them. To the sportsman they are most annoying, by announcing to every other bird and animal his approach; to the traveller in the country, they may possibly, as Molina says, do good, by warning him of the midnight robber. During the breeding season, they attempt, like our peewits by feigning to be wounded, to draw away from their nests dogs and other enemies. Their eggs are of a pointed oval form; of a brownish olive colour, thickly spotted with dark brown. Their eggs, like those of the peewit, are esteemed particularly good eating." (Darwin, Zoology of the Voyage of H.M.S. "Beagle," III, p. 127, 1841.)

"A common bird throughout the plains, especially near the coast and about the lagoons. Very noisy, especially at night or when molested at any time. But at night it seems to delight in making a racket through sheer wantonness." (J. B. Hatcher in manuscript notes.)

722, male, Elizabeth Island.

"Eyes pink, legs pink, bill black at tip, pink at base."

"The characters given by Mr. Harting to separate the western form from *V. cayennensis* are slight, but, we think, on the whole, sufficient to justify the employment of his name." (Sclater & Salvin, on Birds Antarctic America, Voyage H.M.S. "Challenger," No. IX, p. 357, 1878.)

"Peckett Harbour, January 4, 1879.

"Male: Talcahuano, Chili, September 22, 1879. Iris, pupil dark red; bill lilac, with black tips; eyelids lilac; legs rose-colour, with grey feet." (Sharpe, P. Z. S., 1881, p. 14.)

"Male. Rio Lujan, Buenos Aires, Arg. Rep., March 7, 1881.

"Female. Salto, Buenos Aires, Arg. Rep., Oct. 18, 1881.

"Iris crimson.

"This Plover, whose native name is 'Teru-Tero,' is very common all over the camps of the province of Buenos Aires, but at the same time found throughout the Republic; and in the breeding-season, which is now (October) at its height, annoys the sportsman by its shrill screeching cry, by circling round his head, and by shamming wounded, in order to attract his attention. Its nest is carefully concealed in the grass, and consists of a mere shallow hollow; but it may be easily discovered when sheep are driven over the land, as then the bird may be seen standing in front of its nest, and flapping its wings violently to make the bands part and pass on either side. The clutch consists of three eggs; and a remarkable circumstance in connection with them is, that when they become heavy with young all their points are directed inwards to a common centre.

"The eggs, of a very elongated pear-shaped form, have a ground of a warm stone-colour, sprinkled over with jet-black spots, which cluster most thickly round the blunt end.

"Meas.: axis 50 mill., diam. 36 mill.

"The eggs form a favourite dish with the natives, and are very delicate." (E. W. White, P. Z. S., pp. 627–628, 1882.)

"A stranger performance is that of the spur-winged lapwing of the same region — a species resembling the lapwing of Europe, but a third larger, brighter coloured, and armed with spurs. The lapwing display, called by the natives its "dance" or "serious dance" — by which they mean square dance" — requires three birds for its performance, and is, so far as I know, unique in this respect. The birds are so fond of it that they indulge in it all the year round, and at frequent intervals during the day, also on moonlight nights. If a person watches any two birds for some time — for they live in pairs — he will see another lapwing, one of a neighbouring couple, rise up and fly to them, leaving his own mate to guard their chosen ground; and instead of resenting this visit as an unwarranted intrusion on their domain, as they would certainly resent the approach of almost any other bird, they welcome it with notes and signs of pleasure. Advancing to the visitor, they place themselves behind it; then all three, keeping step, begin a rapid march, uttering resonant drumming notes in time with their movements; the notes of the pair behind being emitted in a stream, like a drum-roll, while the leader utters loud single notes at regular intervals. The march ceases; the leader elevates his wings and stands erect and motionless, still uttering loud notes; while the other two, with puffed-out plumage and standing exactly abreast, stoop forward and downward until the tips of their beaks touch the ground, and, sinking their rhythmical voices to a murmur, remain for some time in this posture. The performance is then over and the visitor goes back to his own ground and mate, to receive a visitor himself later on." (Huds. Natur. La Plata, 1892, pp. 269–270.)

"Resident and common; abundant on some camps. They mob the unfortunate human being on all occasions, whether in the breeding-season or not. Sportsmen hate them most heartily, as it is well-nigh impossible to stalk anything if there are any 'Téru-Térus' about. Apart from this, the harsh ear-piercing cries become most wearisome and even distressing after a time when you are passing over ground where there are many of these beautiful birds. Even in autumn I have had a bird dash at me time after time as I rode along and come so close that I struck at it with my 'revenque' (the short cow-hide whip one invariably carries). The eggs, which are fully as hard to find as our Peewit's, are laid on the open camp, and the breeding-habits seem very similar to those of our bird. For instance, Mr. Burgess rode suddenly on to a pair (11th November), and, disregarding the wing-trailing business of the male, saw the female standing up over a single fresh egg, doubtless waiting for a good opportunity to slip quietly away. The peones say that when a pair find their eggs in danger from a flock of sheep coming in their direction they remain over the eggs, making violent demonstrations, and that the sheep open out when they come to them and close up again when they get past. In the early part of January, when the young were on the wing, they went in flocks. A young one shot on the 9th had colour of soft parts very dull, and wing-spur very little developed, or about 0.2 inch long. Later in the year the flocks broke up again, although little parties of half a dozen or so might be seen together. They were breeding in November: 11th, one fresh egg; 18th, four hard-set; last days of the month, four fresh. At Sta. Florencia in mid-December, a little flock frequented the chacra and used to go through the strangest antics; they went about in threes a good deal and did much bowing and aimless running about." (O. V. Alpin, on Birds Uruguay, Ibis, pp. 205–206, 1894.)

The British Museum has received numerous specimens of *Belanopterus chilensis* from Lake Blanco, Chubut, collected during the months of September and October by J. Koslowsky.

Genus ZONIBYX Reichenbach.

Type.

Zonibyx, Reichenb. Av. Syst. Nat., p. XVIII (1852);
Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 238 (1896);
Sharpe, Hand-List Bds. I. p. 153 (1899); . . . . *Z. modesta*.

Geographical Range.—South America, from Tierra del Fuego northward; on the Atlantic coast to Buenos Aires, Argentine Republic; on the Pacific coast to Tarapacá, Peru. The Falkland Islands.

Zonibyx modestus (Lichtenstein).

Charadrius modestus, Licht. Verz. Doubl. p. 71 (1823: Montevideo); Seebohm. Geogr. Distr. Charadr. p. 105 (1888: Santa Lucia, La Plata).

Tringa urvillii, Garn. Ann. Sci. Nat. VII. p. 26 (1826).

Vanellus cincta, Less. Voy. Coq. Zool. I. p. 126, pl. 43 (1826).

Charadrius nebulosus, Less. Man. d'Orn. II. p. 315 (1828).

Charadrius rubecula, King, Zool. Journ. IV. p. 96 (1829: Straits of Magellan); Seebohm, Geogr. Distr. Charadr. pl. i (1888).

Squatarola rubecula, Jard. & Selb. Ill. Orn. II. pl. 110 (1830).

Squatarola cincta, Darwin, Voy. Beagle, Birds, p. 126 (1841: Tierra del Fuego; Falkland Is.; Island of Chiloe); Gould, P. Z. S. 1859, p. 195 (Falkland Is., eggs described).

Squatarola fusca, Gould, Voy. Beagle, Birds, p. 126 (1841: Maldonado).

Squatarola urvillii, Fraser, P. Z. S. 1843, p. 118 (Chili); Des Murs in Gay's Hist. Chil. Zool. I. p. 401 (1847); Hartl. Naum. 1853, pp. 215, 221 (Chili).

Squatarola modesta, Gray, Gen. B. III. p. 543 (1847); Licht. Nomencl. Av. Mus. Berol. p. 95 (1854: Montevideo).

Zonibyx cincta, Reichenb. Av. Syst. Nat. p. xviii (1852).

Hiaticula fusca, Cass. U. S. Expl. Exped. p. 328 (1858: Tierra del Fuego).

Eudromias urvillii, Scl. P. Z. S. 1860, p. 386 (Falkland Is.); Abbott, Ibis, 1861, p. 155 (Falkland Is., Sept. to April, breeds in October).

Vanellus modestus, Burm. La Plata Reise, II. p. 502 (1861: Pampas; Rio Quarto); C. Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Patagonia and Tierra del Fuego); Carbajal, La Patagonia, part II. p. 276 (1900).

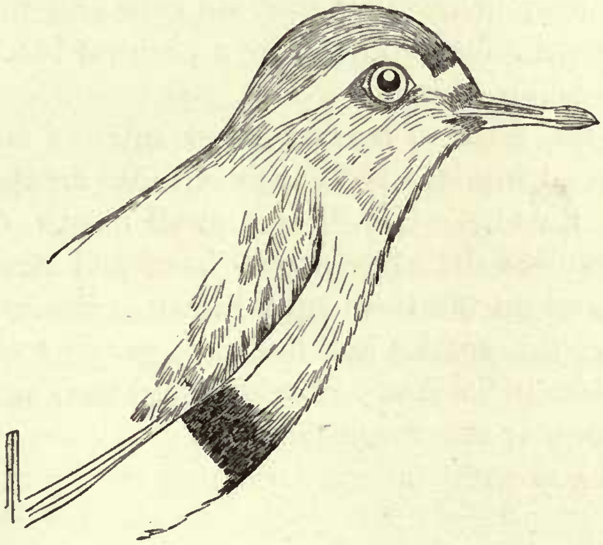
Morinellus modestus, Schl. Mus. Pays Bas, IV. Cursores, p. 48 (1865: Port Famine, Patagonia; Falkland Is.).

Eudromias modesta, Scl. & Salv. Ibis, 1868, p. 188 (Sandy Point, Dec.; Peckett Harbour, Jan.); iid. P. Z. S. 1868, p. 144 (Conchitas, winter visitor); Harting, Ibis, 1870, p. 202; Scl. & Salv. t. c. p. 500 (Sandy

Point, March); iid. Nomencl. Av. Neotr. p. 143 (1873: Patagonia and Falkland Is.); Durnf. Ibis, 1876, p. 164 (Flores Island, March), 1877, p. 197 (Buenos Aires, autumn and winter visitor); 1878, p. 402 (Chupat Valley, April); Scl. & Salv. P. Z. S. 1878, p. 438 (Gray Harbour; Tom Harbour; Puerto Bueno; Port Famine; Falkland Is.); iid. Voy. Chall. II. Birds, p. 109 (1881); Sharpe, P. Z. S. 1881, p. 15 (Tom Bay, Feb.; Puerto del Morro, Feb.; Port Henry, Jan.; Cockle Cove, Oct.); Doering, Expl. al Rio Negro, Zool. p. 56 (1882: Choelechoel); Barrows, Auk, I. p. 313 (1884: Concepcion, April and May); Withington, Ibis, 1888, p. 472 (Lomas de Zamora, abundant); Scl. & Huds. Argent. Orn. II. p. 171 (1889); Holland, Ibis, 1891, pp. 16, 19 (Argent. Rep. fairly common), 1892, p. 210 (Estancia Espartilla, March to Aug.); James, New List Chil. B. p. 11 (1892), Alpin, Ibis, 1894, p. 206 (Uruguay, winter); Lane, Ibis, 1897, p. 303 (Arauco, Aug.); Nicoll, Ibis, 1904, p. 46 (Port Gallant); Crawshay, B. Tierra del Fuego, p. 118 (1907); Cheena Creek Settlement, Nov. 17, 1904.

Squatarola durvillii, Martens, J. f. O. 1875, p. 440 (Chili).

FIG. 151.



Zonibyx modestus. Adult male. P. U. O. C. 7783. Natural size.

Zonibyx modesta, Ridgw. Proc. U. S. Nat. Mus. XII. p. 137 (1889: Port Otway); Sharpe, Cat. B. Brit. Mus. XXIV. p. 238 (1896: Chupat, Patagonia, April); Schalow, Zool. Jahrb. Suppl. IV. p. 666 (1898: Uschuwaria-canal, Tierra del Fuego, March; Port Stanley, Falkland Is., May, common); Salvad. Ann. Mus. Genov. (2) XX, p. 624 (1900: Penguin Rookery, Feb.; Punta Arenas, May and June); Martens, Hamb. Magalh. Sammelr. p. 14 (1900: Falkland Islands).

Charadrius (Eudromias) modestus, Oust. Miss. Scient. Cap Horn, Oiseaux, p. 111 (1891).

Zonibyx modestus, Oates, Cat. Bds. Eggs Brit. Mus. II. p. 21 (1902); Sharpe, Hand-list B. I. p. 153 (1899).

GENERAL DESCRIPTION.

Size.—Adult male. Summer plumage. (P. U. O. C. 7783. Near Mt. Tigre, Patagonia, 23 August, 1896. J. B. Hatcher.) Total length, about 8 inches.

Wing, 5.8 inches.

Culmen, 0.75 inch.

Tail, 2.7 inches.

Tarsus, 1.3 inches.

The adult female is a little larger than the adult male.

Color.—Adult male (cited). General color above glossy snuff brown, darker on the rump; below slate grey on chin and throat, then a broad area of cinnamon chestnut, followed by a pectoral black band, the rest of the lower surface being white.

Head: The lores, base of forehead and sides of face below the eyes slaty grey. A broad frontal band continued into an eyebrow and extending to the occiput, white. Crown rich snuff brown, darkest where it is sharply defined against the white frontal band and eyebrows.

Neck: Above and on the sides snuff brown. Below pale ashy grey inclining to whitish; this shades into fine slate grey on the throat, the whole confluent to the sides of the face. Forehead and lores as described. Lower throat bright orange or cinnamon chestnut.

Back: Rich glossy snuff brown darkening on the rump and upper tail coverts.

Tail: Central rectrices deep snuff brown inclining to umber. The outer rectrices pure white. The next to the outer pair chiefly white, with two black bars on their inner webs toward the tip of the feather. The third outer pair of rectrices chiefly brown with white tips. The remainder of the rectrices wholly snuff brown with indistinct fringing of lighter at the tips.

Wing: Snuff brown in general appearance like the back. Wing coverts like the back. Bastard wing and primary coverts snuff brown. Quills snuff brown ; the exposed webs of the primaries darker and the shafts of these quills creamy white. The secondaries much like the primaries but without white shafts and the innermost small ones tipped with pure white.

Lower parts: Chin pale ashy grey, almost whitish, shading into fine slate grey on the throat; this color ends abruptly on the lower throat, the entire breast being rich bright orange or cinnamon chestnut; this color terminates abruptly and is outlined by a black pectoral band about three quarters of an inch wide. The remainder of the lower parts pure white with obscure brown markings on some of the lower tail coverts. Thighs brown. Axillaries and under wing-coverts white, some of the outer of these coverts shading into ashy brown. Quills from below ashy brown.

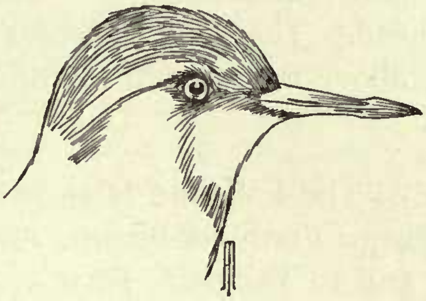
Bill "black" (H. Burmeister).

Feet and legs "greenish grey" (H. Burmeister).

Iris "dark brown" (J. B. Hatcher).

The adult female is colored like the adult male.

FIG. 152.

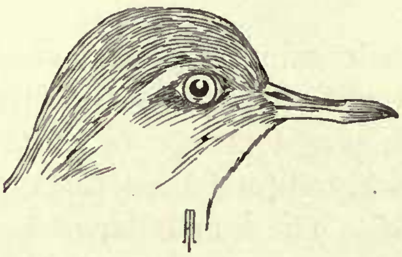


Zonibyx modestus. Head of adult in winter. P. U. O. C. 7792. Female. Natural size.

Adults in Winter Plumage.—(Female adult P. U. O. C. 7792, Cape Fairweather, Patagonia, 29 July, 1896, J. B. Hatcher.)

Similar above to adults in summer, the feathers a little darker and many of them with a narrow buffy fringing. Lower parts. The throat white. Lower throat, fore neck, breast, and chest light snuff brown, each feather narrowly margined with buffy white, giving a sandy appearance to the whole. Back of this, the black pectoral band is indicated, each black feather tipped with ashy white. Rest of the lower parts as in summer adults. The forehead is dull slate grey, which color extends to below the eyes on the fore part of the face, fading, into grayish snuff brown. The white forehead band and the white eyebrow streak indicated. Tail like that of adult in summer.

FIG. 153.



Zonibyx modestus. Head of young of the year. P. U. O. C. 7793. Female. Natural size.

Young of the year.—(Male, P. U. O. C. 7978, Arroyo Gio, Patagonia, 9 April, 1898, A. E. Colburn.)

Much darker above than adults in winter and with conspicuous buffy white margins to the feathers, especially on the shoulders and greater coverts as well as on the back.

Below, much like adults in winter, but the chest patch much more sandy and the pectoral black band almost obsolete. The whole head more buffy, especially on the forehead. The *white forehead band not indicated*, but the eyebrow appearing above the eye and extending back as in adults and of a creamy buff color.

Geographical Range.—The Falkland Islands. Southern South America from Tierra del Fuego north to Buenos Aires, Argentine Republic, on the Atlantic coast; and to Tarapacá, Peru, on the Pacific coast.

The series of this plover obtained by the naturalists of the Princeton University Expeditions are cited below. The birds appear to be chiefly maritime and fairly common. They present a wide difference in appearance at the two extremes of the year, and immature birds look very much like the adults during the winter season. From Darwin's account are cited the following notes as of interest. Under the heading of *Squatarola cincta* (op. cit., contra) referring to this bird, he writes as follows:

"I obtained specimens of this bird in Tierra del Fuego, where it inhabited both the seashore, and the bare stony summits of the mountains; at the Falkland Islands, where it frequented the upland marshes; and at Chiloe, where I met with large flocks in the fields, not near the coast."

P. U. O. C.	Sex.	Date.	Locality.	Collector.
7783	Male.	23 August, 1896.	Near Mt. Tigre, Patagonia.	
7784	Male.	23 August, 1896.	Near Mt. Tigre, Patagonia.	
7792	Female.	29 July, 1896.	Cape Fairweather, Patagonia.	
7793	Female.	29 July, 1896.	Cape Fairweather, Patagonia.	
7978	Male, im.	9 April, 1896.	Arroyo Eke, Patagonia.	A. E. Colburn.

Gould referred the winter adults to a new form, which he described as *Squatarola fusca* (op. cit., p. 126) and Darwin, evidently agreeing, still concluded that the relationship was apparent; he writes:

"This species is most closely allied to the foregoing. I obtained only one specimen, which, on comparison with several *S. cincta*, appears a little larger in all its dimensions, especially in the length of the tarsi. Its back and scapularies are of a more uniform brown, the feathers being less edged with pale brown. Its feet are black, whereas those of *S. cincta* are brown." (Gould, Voyage of H. M. S. Beagle—Birds, p. 126–127.)

646, female, Gray Harbour.

"Eyes brown; stomach had insects."

660, female, Tom Harbour.

"Eyes black; stomach had insects."

673, male, Puerto Bueno.

"Eyes brown; stomach had seeds and sand."

690, male, Port Famine.

"Eyes brown; stomach had sand."

728, male, Falkland Islands.

"Eyes brown; stomach had sandy particles &c."

(Sclater & Salvin, on Birds Antarctic America, Voy. H. M. S. "Chall." —No. IX. p. 438, 1878.)

"Ad.: Tom Bay, February 1879.

"Male juv.: Puerto del Morro, February 5, 1879.

"Male juv.: Port Henry, January 28, 1879. Eyes black; legs grey; bill horn-colour.

"Male: Cockle Cove, October 16, 1879. Iris dark brown; bill dark; legs light grey." (Sharpe, P. Z. S. 1881, p. 15.)

This plover visits the Falkland Islands during the Patagonian summer and breeds in that locality, retiring again in the colder season to the mainland presumably. From this point Abbott wrote of this bird, which is locally known as the "Dotterel": "It may safely be said that this is a migratory bird in East Falkland. The dotterel first appears in the beginning of September, when the dry peat banks in all parts of the island are covered with them. Their breast plumage is then of a beautiful red. They lay the first week of October (as appears from my note book) placing their eggs which are two in number on the dry moss, without making any nest. The eggs are so nearly the colour of the surrounding ground, that one almost treads on them before seeing them. I have sometimes however found their eggs placed under a bush. After the breeding season the bright colour on the breast fades away. In the month of February they commence to gather in flocks along the coast, and by the end of April disappear entirely and do not return until the end of August or the beginning of September of the following year. I have observed that these birds always leave their eggs when anyone approaches and walk away calling all the time. Of an afternoon, however, I have disturbed them off their nests; they appear then to set more closely." (Abbott, Ibis, 1861 p. 155.)

"Breeds in South Patagonia and visits Uruguay for the winter. Riding over to a neighboring estancia with a friend on the evening of the 29th March, and unfortunately without a single cartridge, having a supply at the house I was going to, I got quite close to a flock of these little plovers in winter dress. When put up they wheeled and turned just like small golden plovers. My friend knew them, and had seen them when they had the dark breast-band. They did not stay and I could not find them again." (O. V. Alpin, on Birds Uruguay, Ibis, p. 206, 1894.)

"Port Gallant, Feb. 3, 1903. Iris black.

"I saw a small flock of these Dotterels at Port Gallant anchorage. All of them appeared to be immature. The two examples that I obtained had the nape of the neck covered with down. Their note was a shrill whistle." (M. J. Nicoll, Orn. Journ. Voy. Round World, Ibis, Jan., 1904, p. 46.)

Genus ÆGIALITIS Boie.

	Type.
Ægialitis, Boie, Isis, 1822, p. 553; Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 254 (1896); id., Hand-list Bds. I. p. 154 (1899).	*Æ. hiaticola.*

Leucopolius, Bp. C. R. XLIII. p. 417 (1856). . . . *Æ. marginata.*
Ægialophilus Gould, Handb. Bds. Austr. II. p. 234 (1865). . . . . *Æ. alexandrina.*

Geographical Range.—Almost cosmopolitan.

ÆGIALITIS FALKLANDICA (Latham).

Rusty-crowned Plover, Portlock, Voy. t. p. 36 teste Latham infra.

Charadrius falklandicus, Lath. Ind. Orn. II. p. 747 (1790: Falkland Islands); Schl. Mus. Pays Bas, IV. Cursores, p. 36 (1865: Falkland Is.; Algarobo, Chili); Seebohm, Geogr. Distr. Charadr. p. 155 (1888); Carbajal, La Patagonia, part II. p. 276 (1900).

Charadrius trifasciatus, Licht. Verz. Doubl. p. 71 (1823: Montevideo); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Northern Patagonia).

Charadrius pyrocephalus, Garn. Ann. Sci. Nat. VII. p. 46 (1826: Falkland Islands). Less. Voy. Coq. Zool. I. p. 719 (1826).

Charadrius annuligerus, Wagl. Syst. Av. Charadrius sp. 13, p. 59 (1827).

Hiaticula trifasciatus, Darwin, Voy. "Beagle,' Birds,' p. 127 (1841: Bahia Blanca, Northern Patagonia).

Hiaticola bifasciata, Fraser, P. Z. S. 1843, p. 118 (Chili, shores and margins of lakes).

Hiaticula falklandica, Gray, List B. Brit. Mus. part III. p. 71 (1844: Falkland Islands).

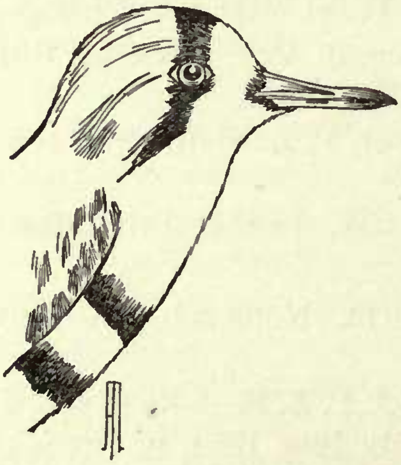
Hiaticula trifasciata, Licht. Nomencl. Av. Mus. Berol. p. 94 (1854: Montevideo).

Ægialitis falklandica, Scl. P. Z. S. 1860, p. 386 (St. Lewis, E. Falklands; Uranie Bay); Abbott, Ibis, 1861, p. 155 (Falkland Islands, arrives in Sept., breeds in Oct.); Scl. & Salv. Ibis, 1868, p. 188 (Sandy Point, Dec.; Gregory Bay, May); iid. P. Z. S. 1868, p. 144 (Conchitas); Huds. P. Z. S. 1872, p. 549 (Rio Negro, Patagonia); Scl. & Salv. Nomencl. Av. Neotr. p. 143 (1873); Harting, P. Z. S. 1874, p. 457, pl. IX. fig. 6, egg; Durnf. Ibis, 1878, p. 402 (Chupat Valley, Lake Colguape, Sengel river, resident, breeds in Sept.); Gibson, Ibis, 1880, p. 163 (Cape San Antonio, common, breeds in Aug. and Sept.); Doering, Expl. al Rio Negro, Zool. p. 56 (1882: Carhué, Puan, Sutmas, Chicas); Barrows, Auk, I. p. 313 (1884: Concepcion, April); Berl. J. f. O. 1887, p. 134 (Paraguay); Scl. & Huds. Argent. Orn. II. p. 172 (1889); Ridgw. Proc. U. S. Nat. Mus. XII. p. 136 (1889: Laredo Bay); Holland, Ibis, 1891, pp. 16, 19 (Arg. Rep., April, fairly common); James, New List, Chil. B. p. 11 (1892); Holland, Ibis, 1892, p. 210 (Estancia Espartilla, March to Sept.), 1893, p. 468 (migrant from Patagonia); Sharpe, Cat. B. Brit. Mus. XXIV. p. 295 (1896: Port St. Julian, Patagonia); Schalow, Zool. Jahrb. Suppl. IV. p. 665 (1898: Punta Arenas, Jan.); Sharpe, Handlist, B. I. p. 155 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 624 (1900: Punta Arenas, Jan.); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Falkland Islands and Patagonia); Crawshay, B. Tierra del Fuego, p. 120 (1907); Useless Bay Settlement, August, 1904.

? *Chorlo* (*Tunga* sp.) Vincig. Patag. p. 26 (1883: Santa Cruz).

Charadrius (*Ægialitis*) *falklandicus*, Oust. Miss. Scient. Cap Horn, Oiseaux, p. 114 (1891).

FIG. 154.



Ægialitis falklandica. Adult male. P. U. O. 7786. Natural size.

GENERAL DESCRIPTION.

Size.—Adult male. (P. U. O. C. 7785 near Rio Coy, Patagonia, 30 September, 1896. J. B. Hatcher.) Total length, 7.3 inches.

Wing, 5 inches.

Culmen, 0.8 inch.

Tail, 2.0 inches.

Tarsus, 1.15 inches.

The adult female does not differ materially from the adult male in size.

Color. — Adult male (cited). General color above ashy brown, becoming cinnamon rufous on the neck and crown. Below, white crossed *by two black bands.*

Head: Forehead and region in front of the eye and sides of face broadly white. A black frontal band passing from eye to eye and to the region of the ear coverts from below the eye. Back of this black band the head is clear cinnamon rufous, deepest on the occiput, and extending down on the back and sides of the neck.

Neck: Back and sides of neck bright cinnamon rufous, continuous with the color of the crown. Chin and throat white, continuous with the white region of the forehead and face. A black band across the fore neck.

Back: Dark ashy brown, including lower back, central rump and central upper tail coverts. The sides of the rump and lateral upper tail coverts white.

Tail: Central rectrices dark ashy brown. The rest ashy until the three outer ones; outermost tail feathers pure white, the next chiefly white with some ashy shading; the third clearly chiefly light ashy. The three outer rectrices with white shafts.

Wings: Upper wing coverts like the back, the greater series narrowly fringed with white. The bastard and primary coverts blackish. Primary quills blackish on their exposed webs, shading into ashy brown and light ashy or whitish on their inner webs. The shafts of the first primary entirely white. The white portion of the shafts of the succeeding primaries restricted to the subterminal portion of each quill. The bases of the inner primaries, white on the outer web, forming a speculum. The secondaries are ashy brown, the outer ones being fringed with white at their ends and innermost ones colored like the back.

Lower Parts: Entirely pure white, crossed by a narrower black band on the lower neck and by a much broader black band across the pectoral region. Under wing coverts and axillaries pure white, the outer series mottled with ashy and the lower primary coverts chiefly ashy.

Bill, black (Hatcher).

Legs and feet, black (Hatcher).

Iris, "Wood-brown" (Durnford).

The adult female is similar in marking to the adult male, but the black forehead and face mark is not so well defined. The rufous generally paler in shade and washed with ashy grey on the occiput and nape.

An immature bird (P. U. O. C. No. 7787, female, Chebunco, 12 miles from Punta Arenas, Straits of Magellan, Patagonia, 10 January, 1898, A. E. Colburn) differs from adults chiefly in its much lighter ashy color above, in the obscuration of the black forehead band and ear-stripe and in the absence of all cinnamon rufous, except an irregular area of that color, light in shade, on either side of the neck just back of the head. The crown and back of head and neck are light ashy brown like the back.

A young bird just having assumed the first plumage (P. U. O. C. 7788, female, Punta Arenas, Straits of Magellan, Patagonia, A. E. Colburn) presents the following character.

Above the general color is ashy grey, each feather conspicuously fringed and margined with sandy buff. The crown and upper neck like the back. The white forehead and loral region indicated. Down still showing about throat and head. Wings and tail much as in the adults, but the wing coverts much marked with sandy buff on their margins and terminally.

Below white, the two black bands being indicated by ashy brown bands, which have all the feathers fringed with sandy buff.

Geographical Range. — The Falkland Islands, Patagonia, Chili and the Argentine Republic.

The series of the rusty-crowned or Falkland plover collected by the naturalists of the Princeton Expeditions is enumerated in detail below. In the Falkland Islands this plover is a migrant, coming to that region to breed and leaving for the mainland when the winter season is passed. It arrives in the Falklands during September and breeds in October, Abbott speaking of the species at that point. Gibson writes of this at Cape San Antonio, Buenos Aires: "Common except at times of drought. It affects the borders of marshes and lagoons and with the cinnamon-colored patch at the back of its head and the black-barred breast, is a very noticeable and handsome little bird.

"The latter half of August and beginning of September constitute the breeding season. Four nests which I have taken were situated close to swamps and were only a hollow scraped in the ground and more or less lined with dry grass. On one occasion the sitting bird remained at a little distance watching me, but the other times it only left the nest when

I was a yard from it, and hobbled away with both wings drooping as if broken, in the most natural manner possible. The full clutch is three (two of the four nests having that number). They are pointed in shape, of an olive ground color, with black spots (similar to the Lapwings, in short) and average $1\frac{13}{40} \times 1\frac{1}{40}$″." (Gibson, Ibis, 1880, p. 163.)

Abbott, writing of this bird at East Falkland, says: "This plover is a spring visitor, arriving about the beginning of September, and breeding shortly afterwards, although I have also found a nest with fresh eggs in it in October. The eggs, three in number, are generally laid on a bank at a short distance from the beach without any nest, being merely deposited in a hole." (Abbott, Ibis, 1861, p. 155.)

"Resident and frequently observed on the banks of the Colguape and subsequently up the Sengel.

"I took fresh eggs and also young in the down of this species on the 29th of September from the shores of a large brackish lagoon near the Chupat valley. The nest is a mere hollow scraped in the sand, and paved with fragments of small shells. The eggs are of a sandy ground color, spotted and streaked (chiefly at the larger end) with black. They measure 1.4 × 1 inch." (Durnford, Ibis, 1878, p. 402.)

The British Museum has five males and a single female of this species (*A. falklandica*), all in full adult plumage, collected by J. Koslowsky, at Lake Blanco, Chubut, in September, October and November.

P. U. O. C.	Sex.	Date.	Locality.	Collector.
7785	Male, adult.	30 September, 1896.	Near Rio Coy, Patagonia.	J. B. Hatcher.
7786	Male, adult.	29 October, 1896.	Near Rio Coy, Patagonia.	J. B. Hatcher.
7787	Female, young.	10 January, 1898.	Straits of Magellan, Patagonia (12 miles from Sandy Point).	A. E. Colburn.
7788	Female, young.	10 January, 1898.	Straits of Magellan, Patagonia (12 miles from Sandy Point).	A. E. Colburn.

Genus PLUVIANELLUS Jacquemont & Pucher.

Type.

Pluvianellus, Jacq. & Pucher, Voy. Pole Sud. Zool. III. p. 124 (1853); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 303 (1896); Sharpe Hand-List Bds. I. p. 155 (1899). *P. sociabilis.*

Geographical Range.—Peculiar to Patagonia.

PLUVIANELLUS SOCIABILIS Jacquemont & Pucher.

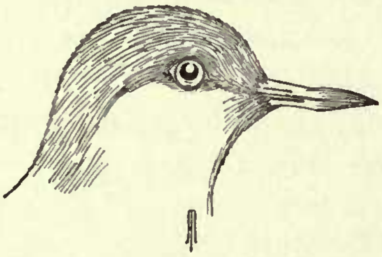
Pluvianellus sociabilis, Jacq. et Pucher. Voy. Pole Sud, Zool. pl. 30, fig. 1 (Jan. 1845); Vol. III. p. 125 (1853: Straits of Magellan); Sharpe, Cat. B. Brit. Mus. XXIV. p. 303 (1896: Patagonia); id. Hand-list, B. I. p. 155 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Patagonia); Crawshay, B. Tierra del Fuego, p. 121 cum tab. (1907): Useless Bay Settlement, September 16. November 5, 1904, breeding.

Pluvianellus socialis, Gray, Gen. B. III. p. 549, pl. 147, fig. 3 (1846).

Strepsilas sociabilis, Giebel, Thes. Orn. III. p. 541 (1877).

Charadrius sociabilis, Seebohm, Geogr. Distr. Charadr. p. 107, pl. ii (1888: Tova Harbour, Patagonia in lat. 45° S.).

FIG. 155.



Pluvianellus sociabilis. Adult male. P. U. O. C. 7791. Nearly natural size.

GENERAL DESCRIPTION.

Size.—Adult male. (P. U. O. C. 7791, near Rio Coy, Patagonia, 30 September, 1896. J. B. Hatcher.) Total length, about 8.3 inches.

Wing, 5.6 inches.

Culmen, 0.7 inch.

Tail, 2.45 inches.

Tarsus, 0.75 inch.

Color.—Adult male (cited). General color, above grayish dove color; below white, the grayish dove color appearing as a broad undefined band across the breast.

Head: Crown and occiput grayish dove color shading into whitish on the forehead and sides of the face. A dusky line in front of the eye extending to the bill. The region of ears shaded darker grayish dove color.

Neck: Above like crown. Below almost white on the chin and throat, the lower fore-neck being occupied by the anterior portion of the brownish grey pectoral band.

Back: Greyish dove color, shading into deeper greyish brown on the median upper tail coverts, the lateral upper tail coverts being white.

Tail: Central rectrices dark blackish brown, with conspicuous broad white margins to the outer webs, decreasing to disappearance at the terminal ends of the vanes, the inner vanes bordered with a hair line of white. The next pair with white preponderating on the outer vanes, and a hair line of white on the inner vanes. The rest of the rectrices chiefly white on both vanes, and dusted or shaded slightly on the outer vanes with smoky brown.

Wings: Coverts like the back, greyish dove color, the greater series tipped with white forming a wing bar. Bastard wing and primary coverts blackish brown, the inner primary coverts being tipped with white. Primary quills blackish brown on their exposed surfaces, shading into pale greyish on their inner webs. The inner primaries shading into whitish on a portion of their outer webs. All the primary quills with subterminal white shafts, which extend well down on the feathers. Secondaries white at their bases, becoming brown near the terminal portion of the outer webs, this shading decreasing in area on each feather, till inner ones are quite white. The innermost long secondaries concolor with the back.

Lower parts: Chiefly white; a broad light smoky brown band occupying the region of the lower fore-neck and breast. Under wing coverts and axillaries white. Under tail coverts white, shaded irregularly with smoky brown.

Bill, black (Hatcher).

Feet and legs, pale orange yellow.

Iris, "pink" (J. Young).

Geographical Range.—Patagonia.

The naturalists of the Princeton Expeditions procured a single individual of this apparently rare plover, which is cited in detail below. But one other individual, the skin of an adult, without sex data, is in the collections of the British Museum of Natural History. It is not different from the one here described, save that it measures a little smaller in size. Little seems to have been observed or recorded of the life history of these birds. Cf. Crawshay, Birds of Tierra del Fuego, p. 121 (1907).

Cond.	P. U. O. C. No.	Sex.	Locality.	Date.	Collector.
Skin.	7791.	Adult Male.	Near Rio Coy, Patagonia.	30 September, 1896.	J. B. Hatcher.

Subfamily *TOTANINÆ.*

Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 337 (1896); Sharpe, Hand-List Bds. I. p. 157 (1899).

Genus NUMENIUS Brisson.

	Type.
Numenius, Briss. Orn. V. p. 311 (1760); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 340 (1896); Sharpe, Hand-list Bds. I. p. 157 (1899)	*N. arquatus.*
Phæopus, Cuv. Règne An. I. p. 485 (1817) . . .	*N. phæopus.*
Cracticornis, Gray, List Gen. Bds. p. 88 (1841) . .	*N. arquatus.*

Geographical Range.—Almost cosmopolitan.

NUMENIUS BOREALIS Latham.

Scolopax borealis, Forst. Phil. Trans. LXII. pp. 411, 431 (1772).

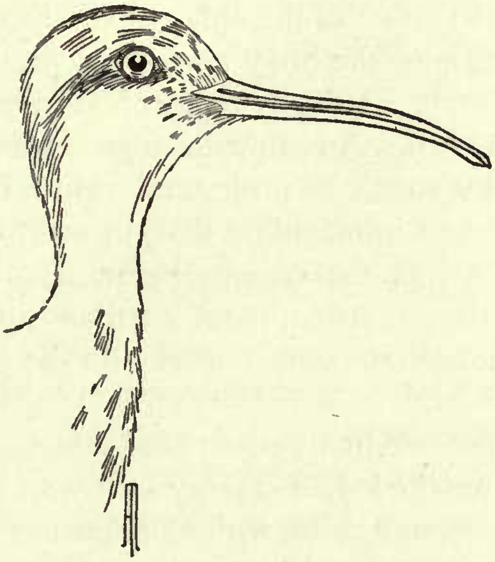
Numenius borealis, Lath. Ind. Orn. II. p. 712 (1790); Scl. P. Z. S. 1867, p. 333 (Chili); Scl. & Salv. Nomencl. Av. Neotr. p. 146 (1873); Durnf. Ibis, 1878, p. 404 (Chupat Valley, Oct.); Barrows, Auk. I. p. 316 (1884: Concepcion, Sept.: Bahia Blanca, Feb., none seen after March 1st); Seebohm, Geog. Distr. Charadr. p. 333 (1888); Scl. & Huds. Argent. Orn. II. p. 192 (1889); Oust. Miss. Scient. Cap Horn, Oiseaux, p. 290 (1891); James, New List Chil. B. p. 12 (1892); Sharpe, Cat. B. Brit. Mus. XXIV. p. 368 (1896); id. Hand-list B. I. p. 158 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 14 (1900: Patagonia and Falkland Islands).

Numenius brevirostris, Licht. Verz. Doubl. p. 75 (1823: Montevideo); Gould, Voy. 'Beagle' Birds, p. 129 (1841: Buenos Aires); Abbott, Ibis, 1861, p. 156 (Falkland Islands); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Falkland Is.).

Numenius microhynchus, Phil. & Landb. Arch. für Nat. 1866, p. 129 (Chili); iid. Cat. Av. Chil. p. 35 (1868: Island of Chiloe).

Eskimo Curlew, Cooke, Science, N. S., XXX. No. 780, p. 856 (Dec. 1909; extinction).

FIG. 156.



Numenius borealis. Adult male. P. U. O. C. 8625. Two thirds natural size.

GENERAL DESCRIPTION.

Size.—Adult Male. (P. U. O. C. 8625, Kendall County, Texas, U. S. A. 9 March, 1880, N. C. Brown).

Total Length, 13 inches.
Wing, 8.2 inches.
Culmen, 2.05 inches.
Tail, 3.1 inches.
Tarsus, 1.8 inch.

Adult Female.—(P. U. O. C. 8626, Kendall County, Texas, U. S. A. 17 March, 1880, N. C. Brown.)

Total Length, 14.3 inches.
Wing, 8.9 inches.
Culmen, 2.35 inches.
Tail, 3.4 inches.
Tarsus, 1.9 inch.

Color.—Adult Male (cited). General color above deep umber brown decorated with tawny and dull buff tipping and notching to each feather. Lower parts buffy of a pale cinnamon shade, decorated with striping on neck and sagittate markings on the sides and flanks of deep brown.

Head: Crown deep umber brown, the feathers bordered with creamy buff, giving a general mottled or flecked appearance to the whole. The crown is defined by the color of the sides of the head and face as well as the nape, in which regions the buffy cinnamon prevails and each feather has a median dark streak. A dusky region just in front of the eye indefinite to the base of the bill. An almost immaculate streak of buffy cinnamon above this dusky streak is prolonged into a rather indefinite eyebrow streak, which is less immaculate than in front of the eye.

Neck: Above much like the crown; below creamy buff, immaculate on chin and upper throat, striped with median lines of umber on the lower throat and with sagittate umber marks on the lower throat and foreneck.

Back: Deep umber brown inclining to black, the feathers bordered terminally and somewhat notched with creamy buff and light rufous shading. Lower back similar in ground color, with more profuse decoration of creamy buff. Upper tail coverts bordered terminally and notched at least four times on each vane with creamy buff, giving a *barred* aspect to these feathers.

Tail feathers barred dark brown and deep slate, bordered narrowly and tipped rather broadly with creamy buff. The outer ones showing some cinnamon rufous in place of the slate bars.

Wings: The wing coverts like the back, but with paler edging and notching. The bastard wing and primary coverts much less decorated, being almost clear dark umber brown, with slight edgings of creamy buff. The primaries are dark umber brown on their exposed surfaces, shaded with greyish brown on the inner webs. The two outer ones are *immaculate* and the rest of the series only just tipped with creamy buff. *No notch marks on the primaries.* The first primary has the shaft clear ivory white. This color is obscured on the shafts of the second and third primaries and from there the shafts are deep brown. The secondaries are brown notched and bordered with creamy buff giving an indistinct barred effect.

Lower parts: General creamy buff with a suggestion of cinnamon. Immaculate and light on the chin and throat. Striped, on the neck, each feather having a median line of dark brown. Sagittate markings of deep brown on each feather of the lower neck, breast and sides, and most conspicuous and definite on the flanks. Abdomen immaculate. Lateral lower tail coverts with indefinite sagittate brown markings, giving a barred effect. Median lower tail coverts plain creamy buff with a cinnamon tinge. Lower wing coverts and axillaries bright cinnamon rufous with barring of deep umber.

Bill, dark brownish black, the lower mandible shading into flesh color at the base.

Tarsi, dark lead color.

Feet, dark lead color.

Iris, deep hazel brown.

The adult female is similar to the adult male in color. (P. U. O. C. 8626, female, Kendall county, Texas, U. S. A. 17 March, 1880. N. C. Brown.)

Young birds of the year are more spotted in appearance above and more rufous in the tone of the markings. The lower surface presents a much more streaked appearance on the neck and throat and the sagittate markings more conspicuous.

Geographical Range.—North America, breeding in the Arctic Regions and more common in the interior than on the coast. Migrating to South America in the fall and wintering from Southern North America to Patagonia, and the Falkland Islands.

The Eskimo Curlew was not observed by the naturalists of the Princeton Expeditions, but there are numerous records from different parts of Patagonia, where it was formerly very abundant.

So far as known the birds are migratory in the area under consideration, some travelling back from almost antarctic conditions to breed in the far north; but it is probable that most representatives do not make so extended a journey, finding a winter home in middle America.

"The Eskimo curlew is almost extinct. Two were shot August 27, 1908, at Newburyport, Mass.; a few were reported by Dr. Grenfell on the Labrador coast the fall of 1906; Bigelow spent the entire fall of 1900 on this coast and saw only five birds and heard of about as many more. The last previous record in the United States is that of two at Nantucket, Mass., August 18, 1898, and the last specimen known from the interior of the United States was taken by Paul Bartsch at Burlington, Ia., April 5, 1893.

"Yet this species was once exceedingly abundant. All writers from Cartwright in 1770 to Coues in 1860 testify to their enormous numbers in fall migration on the Labrador coast. Packard in 1860, speaks of a flock a mile long and a mile wide.

"The Eskimo curlew had an elliptical migration route; it nested on the barren grounds of Canada, went southeast to Labrador and Nova Scotia, then straight south across the Atlantic Ocean more than 2,000 miles at a single flight to the Lesser Antilles and South America; it wintered on the pampas of Argentina and in spring went north by way of Texas and the Mississippi Valley in a narrow belt on both sides of 97°.

"It retained its former abundance until the late seventies or early eighties and then in about ten years the species became almost extinct. Some of this diminution is probably due to the fact that during these years the part of the Mississippi Valley through which it migrated was largely brought under cultivation. But the most potent factor has been the changing of its winter home—where it spent one half the year on the pampas of Argentina—from sparsely settled grazing lands to enormous wheat lands. During the years 1878–1892 Argentina increased its wheat production fifty-fold and the pampas-loving Eskimo curlew suffered." (The Migration and Recent History of the Eskimo Curlew: W. W. Cooke. Science, N. S., XXX. No. 780, p. 856, December 10, 1909; Report of Proceedings, Biological Society of Washington.)

Genus LIMOSA Brisson.

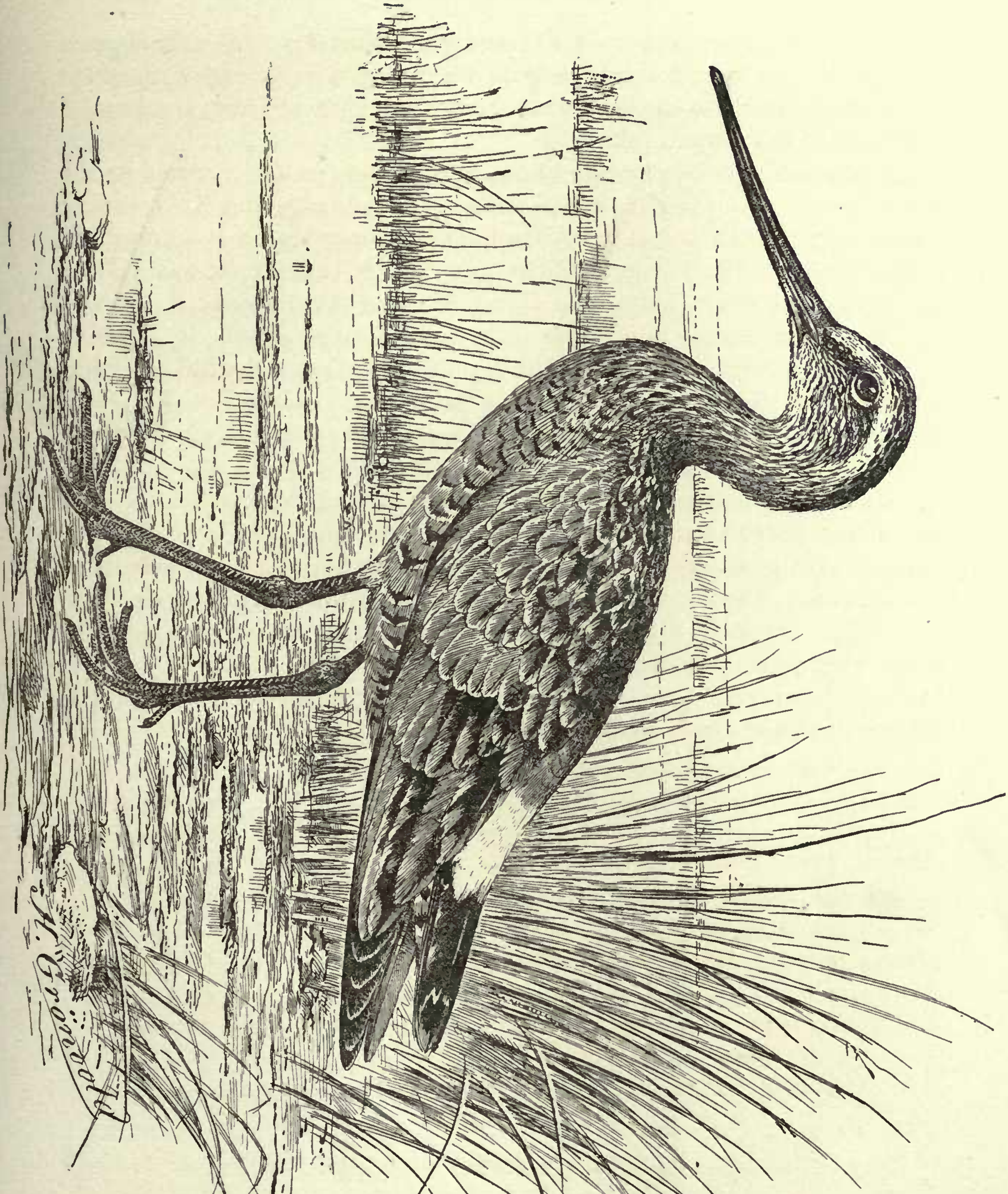
	Type.
Limosa, Briss. Orn. V. p. 261 (1760); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 372 (1896); Sharpe, Hand-list Bds. I. p. 159 (1899)	*L. lapponica.*
Actitis, pt. Illig. Prodr. p. 262 (1811)	*L. lapponica.*
Limicula, Vieill. N. Dict. d'Hist. Nat. III. p. 245 (1816).	*L. lapponica.*
Fedoa, Stephens, Gen. Zoöl. XII. pt. L. p. 70 (1814)	*L. fedoa.*

Geographical Range.—Almost cosmopolitan.

LIMOSA HUDSONICA (Latham).

The Red-breasted Godwit, Edwards, Nat. Hist. B. III. p. 138, pl. 138 (1750).

FIG. 157.



Limosa hudsonica. Adult. About one half natural size. From material in British Museum.

Hudsonian Godwit, Penn. Arct. Zool. Suppl. p. 68 (1787); Lath. Gen. Suppl. I. p. 246 (1787).

Scolopax hudsonica, Lath. Ind. Orn. II. p. 720 (1790).

Limosa hudsonica, Darwin, Voy. 'Beagle,' Birds p. 129 (1841: Island of Chiloe; Falkland Islands); Fraser, P. Z. S. 1843, p. 118 (Chili, about the mouths of rivers near the sea); Des Murs in Gay's Hist. Chil. Zool. I. p. 420 (1847); Hartl. Naum. 1853, p. 222 (Chili); Licht. Nomencl. Av. Mus. Berol. p. 91 (1854: Chili); Gould, P. Z. S. 1859, p. 96 (Falkland Is.) Scl. P. Z. S. 1860, p. 387: Abbott, Ibis, 1861, p. 156 (Falkland Is., May); Schl. Mus. Pays Bas, V. Scolopaces, p. 22 (1864: Falkland Is.); Pelz. Reise Novara, Vög. p. 128 (1865: Chiloe); Phil. & Landb. Cat. Av. Chil. p. 35 (1868: Coast of Chili); Scl. & Salv. Ibis, 1870, p. 500 (Ancud; Chiloe, Nov.); iid. Nomencl. Av. Neotr. p. 146 (1872); Durnf. Ibis, 1877, p. 43 (Chupat Valley, Nov.), p. 200 (Buenos Aires, April to Sept., common); Doering, Expl. al Rio Negro, Zool. p. 57 (1882); White, P. Z. S. 1883, p. 42 (La Plata, Nov.); Seebohm. Geogr. Distr. Charadr. p. 392 (1888); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Falkland Islands); Oust. Miss. Scient. Cap Horn, Oiseaux, p. 291 (1891); Hudson, Nat. in La Plata, p. 21 (1892); James, New List Chil. B. p. 12 (1892); Sharpe, Cat. B. Brit. Mus. XXIV. p. 388 (1896); Schalow, Zool. Jahrb. Suppl. IV. p. 659 (1898: Calbuco, Dec.); Sharpe Hand-list B. I. p. 159 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900: Straits of Magellan & Falkland Islands).

Limosa australis, Gray, List B. Brit. Mus. Part III. p. 95 (1844: San Salvador Bay, E. Falklands).

Limosa hæmastica, Baird, Brewer & Ridgw. Water Birds, N. Amer. I. p. 260 (1884); Scl. & Huds, Argent. Orn. II. p. 191 (1889); Holland, Ibis, 1892, p. 212 (Estancia Espartilla, July and Aug., rare).

GENERAL DESCRIPTION.

Size.—Adult male. (P. U. O. C. 8629, Scarborough, Maine, U. S. A., 27 August, 1877. N. C. Brown.) Total length, 14.7 inches.

Wing, 8.4 inches.

Culmen, 2.9 inches.

Tail, 2.9 inches.

Tarsus, 2.4 inches.

The sexes do not vary greatly in size.

Color.—Adult male (breeding). General color above blackish brown, with creamy edges and rufous notches and spots to each feather. Below pale creamy white on the chin, shading into deep rufous chestnut on the throat and rest of the lower parts. The neck streaked and the rest of the under parts obscurely barred with blackish brown.

Head: Crown ashy brown, with a rufous wash and each feather with a median region of deep brown. An obsolete eyebrow of creamy white, striped with fine brown lines. Loral region dusky. Sides of face creamy white with a rufescent tinge. A distinct white area or spot in front of the eye, and extending below it.

Neck: Upper surface similar to back; sides creamy white with a rufescent tinge; chin whitish with a rufous shading and lined with fine spots of blackish brown; lower throat deep rufous chestnut, lined or streaked with deep blackish brown.

Back: Blackish brown, each feather marked and notched with pale rufous. The lower back and rump are deeper in tone and the feathers are narrowly fringed with creamy. Upper tail coverts black terminally and crossed basally by a broad band of white, forming a white rump spot. The longer upper tail coverts with the black predominating.

Tail: Black with broad white bases and narrow white tips to the feathers.

Wings: Coverts brown, showing much less rufous than the back; the greater series edged with white at the ends of the feathers. The inner greater coverts notched with rufous like the inner secondaries. Bastard wing and primary coverts black, the coverts tipped with white forming together a white spot. Primaries and all but the innermost secondaries blackish, with white shafts, which show almost to the ends of each feather.

Under parts: Chin creamy or rufescent white, shading into deep rufous chestnut on the lower throat. This color prevails over the entire under surface, being streaked on the throat and neck and barred on the breast, chest and abdomen with dusky or blackish. Under tail coverts broadly barred rufous chestnut and blackish, tipped with white. Axillaries blackish. Under wing coverts dusky slate, the outer ones with broad white edging.

Bill, "greyish yellow, dark brown along the ridge of the upper mandible, and blackish toward the tips of both" (J. J. Audubon).

Feet, "light grayish blue" (J. J. Audubon).

" Iris dark hazel brown.

" Male. La Plata, Buenos Aires, Arg. Rep., Nov. 10, 1882.

"Female. La Plata, Buenos Aires, Arg. Rep., Nov. 10, 1882.

"Iris dark sepia.

"Frequents the lagoons in flocks of about thirty." (E. W. White, P. Z. S. 1883, p. 42.)

The adult female in the breeding plumage is similar to the male, but less deeply colored and never apparently assuming the reddish plumage so fully.

Adults in winter plumage. — Upper parts ashy brown with dusky shaft lines to the feathers, becoming darker on the lower back and rump. Upper tail coverts white with black tips. Tail black, white at base. The quills much as in summer except that the innermost secondaries are brown like the back. The crown of the head is ashy brown. Lores and feathers in front of the eyes deeper brown, and above this a streak of dull white. Face and cheeks ashy grey, paler below the eye. Upper neck ashy brown with a fulvescent shade, sides of neck ashy grey, extending over the lower throat, fore-neck and chest, the remainder of the under-body, upper throat and chin being white. Axillaries and under wing coverts much as in the summer plumage.

Young birds of the year are similar in general appearance to the adults in winter plumage. They are a little darker in general tone. The feathers of the upper parts are mottled, the edge of each feather being tawny buff, and having a sub-terminal black and buffy barring. The inner secondaries and the central tail feathers are barred or mottled in a similar manner. The general tone of the lower parts is more buffy than in adults in winter; sides of body browner and the axillaries and under-wing coverts much as in adults.

Geographical Range. — North America, from Alaska to Hudson Bay and north in the breeding season. Migrating southward east of the Rocky Mountains and through the eastern United States by way of the greater Antilles to South America, where it has been found in winter as far south as Chili, Patagonia, the Straits of Magellan and the Falkland Islands.

The Hudsonian Godwit was not observed by the naturalists of the Princeton Expeditions. The material for the descriptions given above is in the British Museum of Natural History and in the Princeton University

Museum. In the combined series are birds from various parts of Argentina, from Patagonia and the Falkland Islands, as well as breeding birds from Hudson Bay and Alaska.

The following biographical notes are from the several sources indicated:

"Here is a puzzle for ornithologists. In summer on the pampas we have a godwit—*Limosa hudsonica;* in March it goes north to breed; later in the season flocks of the same species arrive from the south to winter on the pampas. And besides this godwit, there are several other North American species, which have colonies in the southern hemisphere, with a reversed migration and breeding season. Why do these southern birds winter so far south? Do they really breed in Patagonia? If so, their migration is an extremely limited one compared with that of the northern birds—seven or eight hundred miles, on the outside, in one case, against almost as many thousands of miles in the other. Considering that some species which migrate as far south as Patagonia breed in the Arctic regions as far north as latitude 82°, and probably higher still, it would be strange indeed if none of the birds which winter in Patagonia and on the pampas were summer visitors to that great austral continent, which has an estimated area twice as large as that of Europe, and a climate milder than the arctic one. The migrants would have about six hundred miles of sea to cross from Tierra del Fuego; but we know that the golden plover and other species, which sometimes touch at the Bermudas when travelling, fly much further than that without resting. The fact that a common Argentine titlark, a non-migrant and a weak flyer, has been met with at the South Shetland Islands, close to the antarctic continent, shows that the journey may be easily accomplished by birds with strong flight; and that even the winter climate of that unknown land is not too severe to allow an accidental colonist, like this small delicate bird, to survive." (Huds. Natur. La Plata, 1892, pp. 21–22.)

"The godwit, already mentioned, has been observed in flocks at the Falkland Islands in May, that is, three months after the same species had taken its autumnal departure from the neighbouring mainland. Can it be believed that these late visitors to the Falklands were breeders in Patagonia, and had migrated east to winter in so bleak a region? It is far more probable that they came from the south. Officers of sailing ships beating round Cape Horn might be able to settle this question definitely by looking out, and listening at night, for flights of birds, travelling north from about the first week in January to the end of February; and in September and October travelling south. Probably not fewer than a dozen species of the plover order are breeders on the great austral continent; also other aquatic birds—ducks and geese; and many Passerine birds, chiefly of the Tyrant family." (Huds. Natur. La Plata, 1892, pp. 22–23.)

"And it is astonishing to find that, of the five and twenty species, at least thirteen are visitors from North America, several of them having their breeding places quite away in the Arctic regions. This is one of those facts concerning the annual migration of birds which almost stagger belief; for among them are species with widely different habits, upland, marsh and seashore birds, and in their great biannual journey they pass through a variety of climates, visiting many countries where the conditions seem suited to their requirements. Nevertheless, in September, and even as early as August, they begin to arrive on the pampas, the golden plover often still wearing his black nuptial dress; singly and in pairs, in small flocks, and in clouds they come—curlew, godwit, plover, tatler, tringa—piping the wild notes to which the Greenlander listened in June, now to the gaucho herdsman on the green plains of La Plata, then to the wild Indian in his remote village; and soon, further south, to the houseless huanaco-hunter in the grey wilderness of Patagonia." (Huds. Natur. La Plata, 1892, pp. 20–21.)

Genus TOTANUS Bechstein.

	Type.
Totanus, Bechst. Orn. Taschenb. II. p. 282 (1803); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 405 (1896); Sharpe, Hand-list Bds. I. p. 160 (1899)	*T. calidris.*
Gambetta (nec Kock), Kaup, Nat. Syst. p. 54 (1829) . .	*T. calidris.*
Erythrocalis, Kaup, op. cit. p. 54 (1829)	*T. calidris.*
Ægialodes, Heine, in Heine and Reichenow, Nomencl. Mus. Hein. p. 327 (1890)	*T. calidris.*

Geographical Range.—Almost cosmopolitan.

TOTANUS MELANOLEUCUS (Gmelin).

Stone Snipe, Penn. Arct. Zool. II. p. 468 (1785); Lath. Gen. Syn. III. pt. I. p. 152 (1785).

Scolopax melanoleucus, Gm. Syst. Nat. I. p. 659 (1788).

Chorlito rabadilla blanca, Azara, Apunt. III. p. 305 (1805).

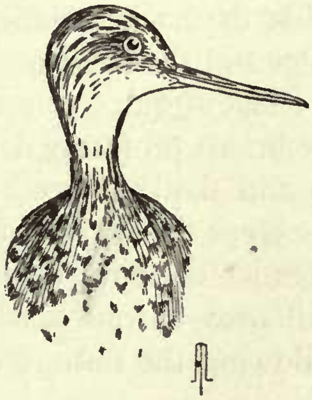
Totanus melanoleucus, Vieill. N. Dict. d'Hist. Nat. VI. p. 398 (1816); Darw. Voy. 'Beagle,' Birds, p. 130 (1841: Maldonado: Rio Plata); Hartl. Ind. Azara, p. 25 (1847); id. Naum. 1853. p. 222 (Chili); Burm. La Plata Reise, II. p. 503 (1861); Schl. Mus. Pays Bas, V. p. 63 (1864: Chili); Pelz. Reise Novara, Vög. p. 131 (1865: Chili); Philippi & Landb. Cat. Av. Chil. p. 35 (1868); Leyb. Pamp. Argent. p. 54 (1873); Baird, Brewer & Ridgw. Water Birds, N. Amer. I. p. 269 (1884); Barrows, Auk, I. p. 315 (1884: Concepcion every month; Azul, Jan.: Bahia Blanca, Feb.; Puan, March; Carhué, April; ? breeds in Patagonia); Philippi, Ornis, IV. p. 160 (1888: Antofagasta); Seebohm, Geogr. Distr. Charadr. p. 363 (1888: Santiago; Colonia); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Northern Patagonia); Scl. & Huds. Argent. Orn. II. p. 186 (1889: La Plata, Sept. to March); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 129, 330 (1891); Graham Kerr, Ibis, 1892, p. 151 (Fortin Page, Sept.); James, New List Chil. B. p. 12 (1892); Holland, Ibis, 1892, p. 212 (Estancia Espartilla, common throughout the year ? breeds); Sharpe, Cat. B. Brit. Mus. XXIV, p. 426 (1896: Straits of Magellan); id. Hand-list B. I. p. 160 (1899); Carbajal, La Patagonia, part II. p. 273 (1900); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900).

Glottis melanoleuca, Licht. Nomencl. Av. Mus. Berol. p. 91 (1854: Montevideo).

Totanus chilensis, Philippi, Wiegm. Arch. 1857, p. 264 (Chili).

Gambetta melanoleuca, Scl. & Salv. P. Z. S. 1868, p. 144 (Conchitas, summer visitor); iid. Nomencl. Av. Neotr. p. 145 (1873); Durnf. Ibis, 1877, p. 199 (Buenos Aires breeds?: Baradero, April, common); Sharpe, P. Z. S. 1881, p. 16 (Talcahuano, April); Doering, Expl. al Rio Negro, Zool. p. 56 (1882: Rio Colorado); White, P. Z. S. 1882, p. 628 (Pacheco, Buenos Aires, March); Scl. P. Z. S. 1886, p. 404 (Tarapacá); Withington, Ibis, 1888, p. 472 (Lomas de Zamora, a few always to be seen about the Lagunas).

FIG. 158.



Totanus melanoleucus. Adult male. Breeding. P. U. O. C. 3839. One third natural size.

GENERAL DESCRIPTION.

Size. — Adult male. (P. U. O. C. 3840, Barnegat, New Jersey, 5 May, 1877. William E. D. Scott.) Total length, 12.0 inches.

Wing, 7.5 inches.

Culmen, 2.25 inches.

Tail, 2.7 inches.

Tarsus, 2.6 inches.

Adult females average appreciably larger in size than adult male birds.

Color. — General color above greyish, varied with white; below, white varied with greyish or blackish mottling, streaking or barring.

Adult male (cited above) breeding plumage. Upper parts, blackish varied with pale grey or white; below white, broadly streaked on the neck, decorated on the breast with sagittate markings, and barred on the sides and flanks with blackish brown, deep in tone.

Head: Crown blackish, each feather edged with white, and a distinct white median line dividing that region. Lores blackish with a broad white streak above. Sides of head and face white streaked with blackish.

Neck: Upper neck much like the crown. Lower neck, chin and throat white, the rest white streaked with blackish like the sides of the face. This streaking becoming gradually wider toward the breast.

Back: Mantle blackish, with greyish or white edging and notching to the feathers. The rump white, distinctly barred with black, the barring being most pronounced on the white upper tail coverts.

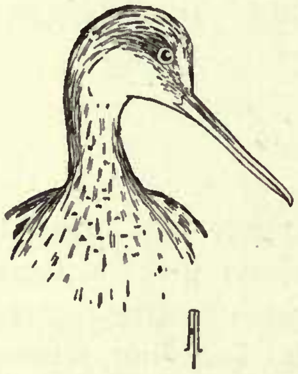
Tail: Greyish, barred evenly with dusky or blackish brown. The outer feathers lighter in ground color, and barred more profusely and distinctly.

Wings: Upper coverts like the back in general appearance. The quills blackish, the inner ones paler and the innermost secondaries much like the back and longer coverts. Shaft of outer primary white, the rest brownish.

Under parts white. The breast profusely decorated with sagittate markings of blackish, the sides and flanks barred with the same color. The under surface of the neck, except the white chin and upper throat, broadly streaked with blackish. Under tail coverts definitely barred with blackish. Under wings and axillaries barred black and white, the barring on the under wing coverts following the outline of the feathers.

Legs, bright yellow.
Feet, bright yellow.
Claws, brown.
Iris, hazel brown.

FIG. 159.



Totanus melanoleucus. Adult in winter. P. U. O. C. 5807. One third natural size.

Adults in winter are *light ashy grey in tone* and *not blackish.* Above they are decorated with greyish and white much as in the breeding dress and the lower rump and upper tail coverts are white with blackish barring. Below the streaking on the lower throat and neck is much narrower, and all the markings on the breast and sides are much reduced in size if not obsolete. The wings and tail are much as in summer, as are the under tail coverts, the lower wing coverts and axillaries.

Young birds of the year are much like winter adults but are *browner,* with less admixture of greyish or white above. The central rectrices and the head and back being nearly uniform, almost without any white or greyish decoration. The markings on the under surface become shadings of dusky ash. The legs and feet are of an olive yellow shade.

Geographical Range.—America. Breeding in the northern portion of the continent and visiting the extreme south of South America during winter, though many winter as far north at least as Florida.

The greater yellow-legs was not noticed by the naturalists of the Princeton Expeditions. Material in the British Museum of Natural History and in the Princeton Museum has been used as a basis for the descriptions of plumage, given above.

Brief biographical sketches of the habits of the birds both in summer and winter are appended.

"I saw an example of either this species or *T. flavipes* (I think the latter) on the 20th October. In autumn this species appeared; one shot on 3d March from a *cañada* was extremely fat. Just a month later I shot one of a pair, and a day or two after saw another. The note is very loud and powerful, somewhat resembling that of the Greenshank, sometimes triple, but generally quadruple." (O. V. Alpin, on Birds Uruguay, Ibis, p. 209, 1894.)

Mr. Barrows writes: "Occurs sparingly at Concepion every month in the year, but in increased numbers during August, September, October and November.

"Birds taken during August and September were for the most part in worn plumage and quite thin; but I never found any which showed evidence of any nearness to the breeding season. I believe that part of these birds bred in North America, and the rest are natives of the southern pampas of Patagonia. They were abundant at Azul, January 25 to 31; at Bahia Blanca one was seen on February 8; I heard them at Paun, March 28, and they were numerous at Carhue the first week in April." (Barrows, Auk, I, p. 315, October, 1884.)

TOTANUS FLAVIPES (Gmelin).

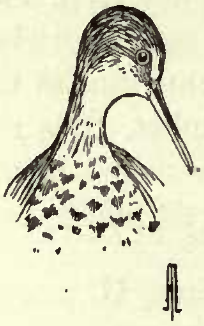
Yellowshanks, Penn. Arctic Zool II. p. 468 (1785); Lath. Gen. Syn. III. pt. i. p. 152 (1785).
Scolopax flavipes, Gm. Syst. Nat. I. p. 657 (1788).
Chorlito pardo mayor, Azara, Apunt. III. p. 314 (1805).

Totanus flavipes, Vieill. N. Dict. d'Hist. Nat. VI. p. 410 (1816); Darw. Voy. Beagle, Birds, p. 129 (1841: Montevideo, Rio de La Plata); Hartl. Ind. Azara, p. 25 (1847); Burm. La Plata Reise, II. p. 503 (1861: Mendoza, Paraná); Pelz. Reise Novara, Vög. p. 131 (1865); Phil. & Landb. Cat. Av. Chil. p. 35 (1868); Baird, Brewer & Ridgw. Water Birds N. Amer. I. p. 273 (1884); Barrows, Auk, I. p. 315 (1884: Azul, Jan., plentiful; Concepcion, not observed during May, June, and July); Seebohm, Geogr. Distr. Charadr. p. 364 (1888); Scl. & Huds. Argent. Orn. II. p. 187 (1889); Ridgw. Proc. U. S. Nat. Mus. XII. p. 137 (1889: Gregory Bay); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 297, 330 (1891); Scl. P. Z. S. 1891, p. 137 (Tarapacá); Graham Kerr, Ibis, 1892, p. 151 (Fortin Page, Sept.); James, New List Chil. B. p. 12 (1892); Holland, Ibis, 1892, p. 212 (Estancia Espartilla, fairly common throughout the year, more numerous Oct. to Feb.); Sharpe, Cat. B. Brit. Mus. XXIV. p. 431 (1896); Lane, Ibis, 1897, p. 311 (Tarapacá); Sharpe, Hand-list B. I. p. 160 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900: South Patagonia).

Totanus stagnatilis, Des Murs (nec Bechst.), in Gay's Hist. Chil. Zool. I. p. 422 (1847); Phil. & Landb. Cat. Av. Chil. p. 36 (1868).

Gambetta flavipes, Scl. & Salv. P. Z. S. 1868, p. 144 (Conchitas, summer visitor); iid. Nomencl. Av. Neotr. p. 145 (1873); Durnf. Ibis, 1876, p. 165 (Buenos Aires, Oct.), 1877, p. 43 (Chupat Valley, common along the banks of the river), p. 199 (Buenos Aires, resident Baradero, April, common), 1878, p. 404 (Sengal river, occasional); Scl. P. Z. S. 1886, p. 404 (Sacaya, Tarapacá).

FIG. 160.



Totanus flavipes. Adult breeding plumage. From the Princeton University Museum. One third natural size.

GENERAL DESCRIPTION.

Size.—Adult male. (P. U. O. C. 781, Princeton, New Jersey, 14 August, 1875. William E. D. Scott.) Total length, 9.5 inches.

Wing, 6.75 inches.

Culmen, 1.51 inch.

Tail, 2.35 inches.

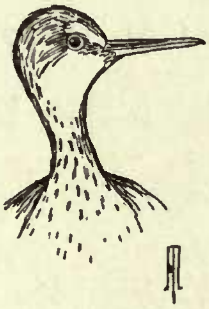
Tarsus, 2.0 inches.

The adult female does not differ appreciably in size from the adult male.

Color.—*Adult male breeding plumage.* Very similar to the adult breeding male of *T. melanoleucus.*

The various stages of plumage just described (pp. 311–313) of *T. melanoleucus* are essentially duplicated in *T. flavipes* and in adult breeding birds the likeness is striking except for the difference in size. The legs and feet in the adult of *T. flavipes* are the same shade of bright yellow. It does not appear essential to go further into details of seasonal change which are almost identical with those of *T. melanoleucus.*

FIG. 161.



Totanus flavipes. Winter plumage. From the Princeton University Museum. One third natural size.

The most obvious character in discriminating the two forms, aside from their substantial difference in size, is in the *relative proportion of the nasal groove* to the total *length* of the *upper mandible.*

In *Totanus flavipes,* the nasal groove occupies more than half of the total length of the upper mandible. In *Totanus melanoleucus* it occupies less than half of the total length of the upper mandible.

Geographical Range.—America. Breeding in the colder temperates and sub-arctic portions of North America. Migrating south chiefly east of the Rocky Mountains by way of the West Indies and wintering in South America as far south as Central Argentina, Chili and Chupat, Patagonia, and in North America at least as far north as the Gulf coast of Florida. Has occurred accidentally in Europe (Ridgway).

The lesser Yellow-legs was not observed by the naturalists of the Princeton Expeditions. The material examined consists of the ample series in the British Museum of Natural History, and the smaller series in the Princeton Museum.

Subfamily *SCOLOPACINÆ.*

Sharpe, Cat. Bds. Brit. Mus. XXIV, p. 520 (1896); Sharpe, Hand-list Bds. I. p. 162 (1899).

Genus CALIDRIS Illiger.

	Type.
Calidris, Cuvier, Leçons Anat. Comp. Tab. II. (1800; descr. Nullâ)	"Maubèche."
Arenaria (nec. Brisson), Bechst. Orn. Taschenb. p. 462 A. (1803)	*C. arenaria.*
Calidris, Illiger, Prodr. Syst. Nat. p. 249 (1811); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 526 (1896); id., Hand-list Bds. I. p. 163 (1899)	*C. arenaria.*

Geographical Range. — Nearly cosmopolitan.

CALIDRIS ARENARIA (Linnæus).

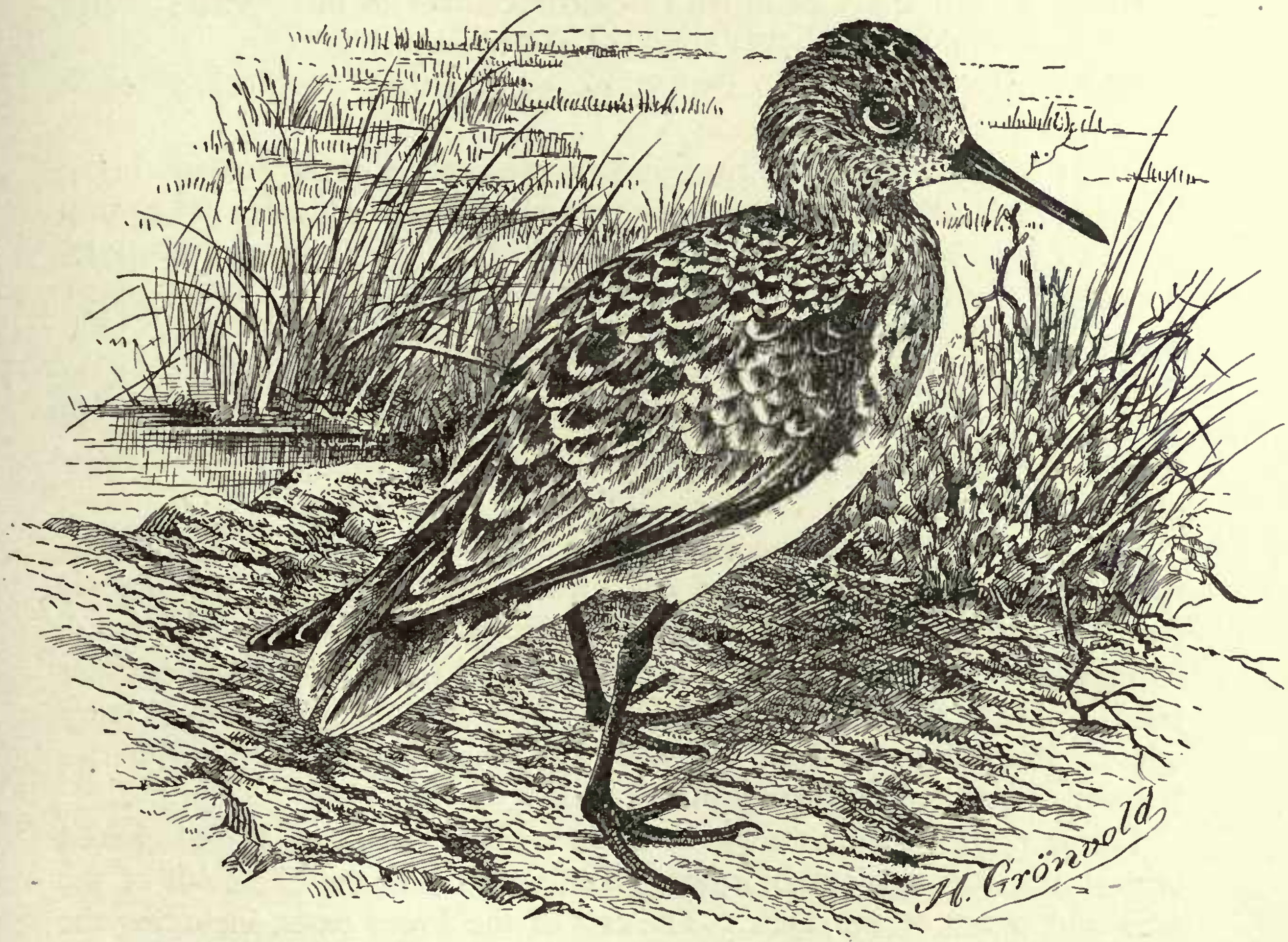
The Sanderling, Albin, Nat. Hist. B. II. p. 68 (1738).

Tringa arenaria Linn. Syst. Nat. I. p. 251 (1766); Phil. & Landb. Cat. Av. Chil. p. 35 (1868); Seebohm, Geogr. Distr. Charadr. p. 431 (1888).

Calidris arenaria, Hartl. Naum. 1853, p. 222 (Chili); Pelz. Reise Novara, Vög. p. 131 (1865; Chili); Scl. & Salv. Nomencl. Av. Neotr. p. 145 (1873); Durnf. Ibis, 1878, p. 404 (Tambo Point, Patagonia, Dec.);

Sharpe, P. Z. S. 1881, p. 10 (Talcahuano, Sept.); Salvin, P. Z. S. 1883, p. 429 (Coquimbo); Baird, Brewer, & Ridgw., Water Birds N. Amer. I. p. 249 (1884); Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: coast of Patagonia); Scl. & Huds. Argent. Orn. II. p. 186 (1889); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 296, 330 (1891); Sharpe, Cat. B. Brit. Mus. XXIV, p. 526 (1896); Schalow, Zool. Jahrb. Suppl. IV. p. 659 (1898: Cavancha, May); Sharpe, Hand-list B. I. p. 163 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900: Patagonia).

Fig. 162.



Calidris arenaria. Breeding plumage. From bird in the British Museum. Natural size.

General description.

Size.—Adult Male, Breeding Plumage. P. U. O. C. 5631, Cobbs Island, Virginia, 3 July, 1881, William E. D. Scott.

Total length, 7 inches.

Wing, 4.75 inches.

Culmen, 1.05 inch.

Tail, 1.8 inch.

Tarsus, 0.9 inch.

The female does not differ appreciably in size from the male.

Color. — Adult male breeding (cited). General color above mottled light rusty red, and blackish, the feathers with white edges and fringes. Below foreparts rusty red speckled with dusky; remainder lower parts *immaculate white.*

Head: Crown deep rusty with blackish centers to the feathers; sides of the face bright light rufous speckled with dusky.

Neck: Above much like the crown, on the sides and below bright light rufous speckled with dusky.

Back: Mottled black and rusty rufous, the centers of the feathers being blackish, their edges rusty, and frequently fringed with whitish. The rump more ashy, less rusty and more white edging to the feathers. Medium, upper tail coverts dusky with rusty and greyish edging. Lateral upper tail coverts pure white.

Tail: Central rectrices ashy grey, darkest toward their tips, with light shafts and pale margins. Remainder of rectrices lighter, whitening on their inner webs, margined with white externally and with pure white shafts.

Wings: Scapulars, innermost secondaries and upper wing coverts, mottled like the back, rusty and black with whitish edgings. The greater coverts broadly tipped with white, forming a conspicuous wing band. Primaries dusky blackish on the exposed surfaces, paling on their inner bases and with the bases broadly white. The shafts of the primaries ivory white. Secondaries, except the innermost ones much like the primaries but with a gradual darkening of the shafts.

Lower parts: Chin, throat, under neck and breast rusty red dotted with dusky; this region color being continuous with the like color of the face and sides of the neck. The rest of the lower parts, including the under wing coverts, axillaries and under tail coverts pure white.

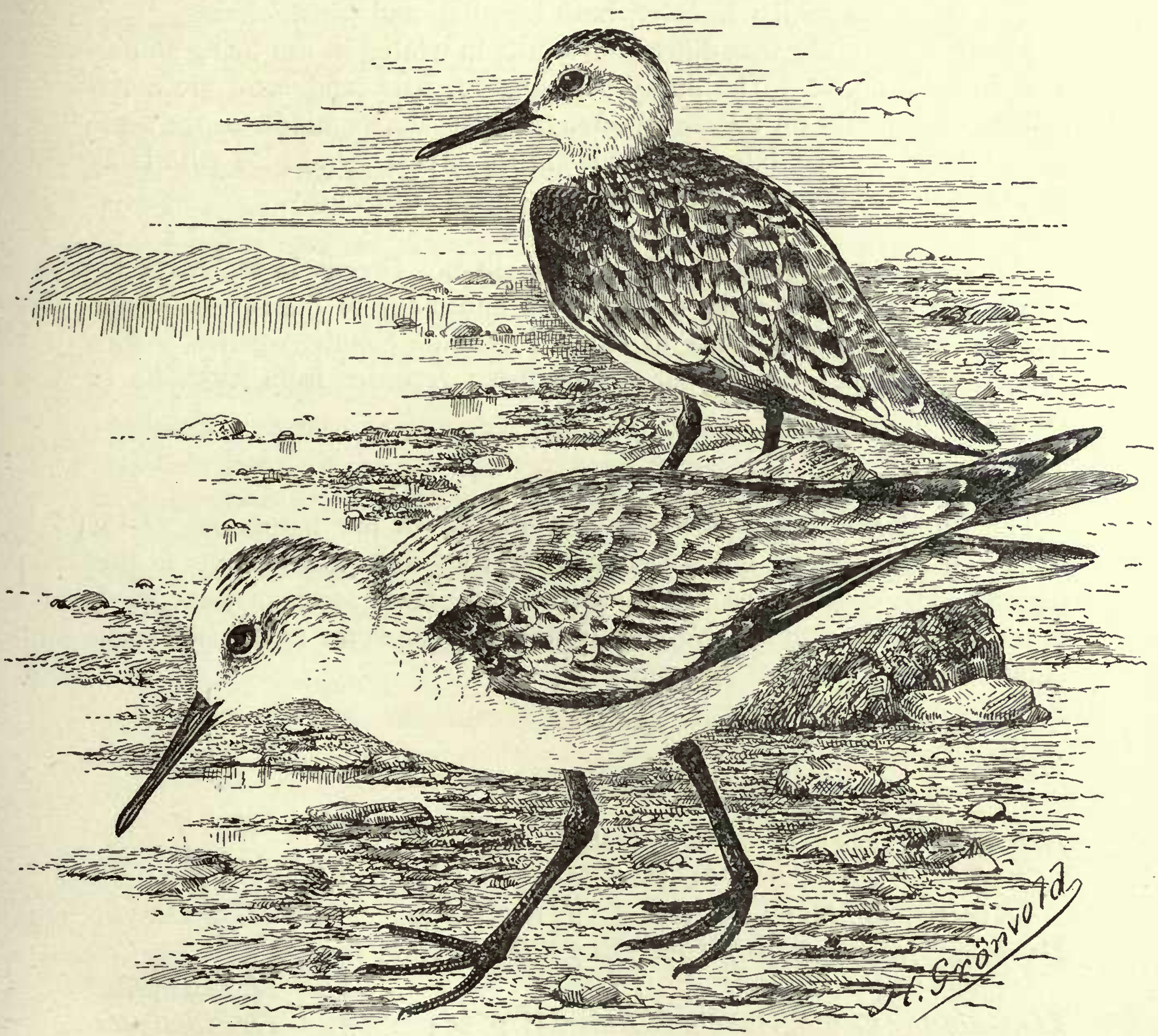
Bill, greenish black.

Legs and feet, greenish black.

Iris, brown.

Adults in winter, are similar in the *disposal of the color areas* but the general color above is light ashy grey, the edges of the feathers more or

Fig. 163.



Calidris arenaria. Winter plumage. The upper figure is an immature, and the lower figure an adult bird at that season. From birds in the British Museum. Natural size.

less distinctly hoary white, and absolute dark centers to those of the crown and back. The head is characterised by a broad band of white occupying the frontal region, a more or less defined white eyebrow stripe, the sides of the face are white, with little or no dusky markings and the *entire lower parts are white.* Some individuals show faint dusky lines or dots on the breast.

The sexes are similar in color, both breeding and winter dress.

Young birds of the year differ from adults in winter, in not being so uniform in color above. The dusky markings on back and head are better defined, the streaks on the crown often reaching across middle of the white frontal band to the bill. The sides of the breast are shaded with buffy and the sides of the neck are distinctly spotted with dusky.

Geographical Range.—Nearly cosmopolitan. Breeds in the Arctic regions, and visits the southern continents and many of the islands of the Atlantic and Pacific Oceans in winter; extreme South America, Africa and Asia, but does not appear to have been recorded from Australia or New Zealand.

The Sanderling Sandpiper was not noticed by the naturalists of the Princeton Expeditions, but it has been recorded from many points in that region. The descriptions are founded on the large series of these birds in the British Museum of Natural History and on some twenty-five individuals in the Princeton Museum.

Genus HETEROPYGIA Coues.

	Type.
Heteropygia, Coues, Proc. Acad. Nat. Sci. Philad. 1861, p. 191; Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 561 (1896); id., Hand-list Bds. I. p. 163 (1899). . .	*H. fuscicollis.*
Delopygia (nom. altern.), Coues, op. cit. 1861, p. 190, note.	*H. fuscicollis.*
Limnocinclus, Gould, Handb. B. Austr. II. p. 254 (1865).	*H. acuminata.*

Geographical Range.—North and South America. Eastern Siberia to China and Australia. Accidental in Europe.

HETEROPYGIA MACULATA (Vieillot).

Tringa pectoralis, Phil. & Landb. Cat. Av. Chil. p. 36 (1868); Philippi, Ornis, IV. p. 160 (1888: Autofagasta).

Tringa maculata, Vieill. Nov. Dict. d'Hist. Nat. XXXIV. p. 465 (1819); Scl. & Salv. Nomencl. Av. Neotr. p. 145 (1873); Durnf. Ibis, 1877, p. 43 (Chupat Valley, abundant), 1878, p. 68 (Buenos Aires, Oct. to April); Barrows, Auk. I. p. 314 (1884: Concepcion, Feb. to Oct.; Carhué, March and April); Scl. P. Z. S. 1886, p. 404 (Huasco, Tarapacá); id. & Huds. Argent. Orn. II. p. 183 (1889); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 295, 330 (1891); Holland, Ibis, 1891, pp. 16, 20 (Arg. Rep., April, fairly common); Scl. P. Z. S. 1891, p. 137 (Tarapacá); Graham Kerr, Ibis, 1892, p. 151 (Fortin Page); James, New List Chil. B. p. 12 (1892); Lane, Ibis, 1897, p. 311 (Tarapacá).

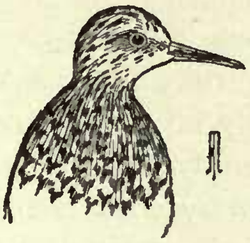
Actodromas maculata, Baird, Brewer & Ridgw., Water Birds N. Amer. I. p. 232 (1884).

Tringa acuminata pectoralis, Seebohm, Geogr. Distr. Charadr. p. 443 (1888).

Tringa bairdi, Alpin (nec Coues), Ibis, 1894, p. 209 (Uruguay).

Heteropygia maculata, Sharpe, Cat. B. Brit. Mus. XXIV. p. 562 (1896: Port Desire, Patagonia); Schalow, Zool. Jahrb. Suppl. IV. p. 660 (1898: Cavanche, May); Sharpe, Hand-list B. I. p. 163 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900: South Patagonia).

FIG. 164.



Heteropygia maculata. Summer plumage. P. U. O. C. 5617. Three eighths natural size.

GENERAL DESCRIPTION.

Size.—Adult male. (P. U. O. C. 5617. Cobbs Island, Virginia, 28 July, 1881. William E. D. Scott.) Total length, 9 inches.

Wing, 5.6 inches.

Culmen, 1.2 inch.
Tail, 2.45 inches.
Tarsus, 1.1 inch.

The sexes do not differ appreciably in size, but there is a marked difference in this respect in individuals, indicated by a maximum length of 9.5 inches and a minimum length of 8 inches, and a corresponding ratio in other parts.

Color.—General color above light clay or buffy brown, broadly striated with dusky or blackish. Below, white with a broad pectoral band extending well onto the fore-neck, light greyish buff, broadly streaked with dusky or blackish.

Head: Crown dusky brown, each feather margined with dusky greyish buff with indications of rusty or rufous. Forehead and sides of the head and face dusky greyish buff, each feather with a median streak of dusky or blackish. The loral region paler, almost or quite white. A rather obscure eyebrow stripe of buffy like the forehead.

Neck: Above dusky greyish buff, each feather with a median stripe of dusky brown or blackish. Below chin and throat white. The rest of the lower neck and the sides of the neck, dusty greyish buff *broadly* streaked with blackish, the streaks becoming broader and arrow shaped as the region of the breast is approached.

Back: Light dusty buff or clay color with a suggestion of rusty, each feather with a broad dusky or blackish central area, giving to the whole a streaked effect. Lower back and rump and upper tail coverts more uniform dusky, the feathers only slightly margined with buff.

Tail: Central rectrices blackish, the remaining ones dusky greyish, narrowly margined and tipped with white.

Wings: Lesser wing coverts dull brown, the median coverts brown with darker centers and dusty fulvous or buffy margins. Greater coverts dusky brown with fulvous, buffy or whitish ending and tips. The bastard wing dull brown; primary coverts blackish, the inner ones tipped with white. Quills deep brown, paling on their inner webs and the first primary with the shaft ivory white almost to the tip. The shafts of the succeeding quills decreasing ivory white until the shafts of the inner quills are brownish.

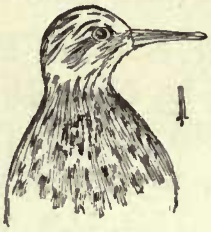
Lower Parts: White, except for a broad pectoral band of ashy brown, each feather fringed with buffy, giving the terminal portion of the ashy brown of each feather an arrow-like shape. This area extends on the lower neck to the upper throat and chin, where the dusky area of each feather takes the form of streaks; under wing coverts and axillaries white.

Bill, deep greenish black, palest at base.

Legs and feet, greyish yellow shaded with brown.

Iris, deep hazel brown.

Fig. 165.



Heteropygia maculata. Winter plumage. P. U. O. C. 3984. Three eighths natural size.

Adults in winter have the upper parts more uniform, the dark streaking being much less pronounced and the lighter tints not so buffy or rusty. The lower parts are much as in summer, but the dusky of the pectoral band is obscured by the longer buff grey edging of the feathers.

Young birds of the year are more like breeding birds than winter adults. They differ in being much more rufous in general appearance and the scapulars and inner secondaries are very conspicuously margined with white. The breast and fore-neck are similar in marking to winter adults, but again the rusty tone prevails.

Geographical Range.—North and South America. Breeding in the Arctic regions of North America and migrating south in winter so that representatives are found as far south as Chili and Patagonia, though many remain in the warmer portions of North America (Texas, Florida, etc.) during the winter months.

The naturalists of the Princeton Expeditions did not record the Pectoral Sandpiper, but the records for that region are many and are referred to in detail in the citations of the literature of the species. The descriptions here given are based on the large series in both the Museum of Princeton University and the British Museum of Natural History.

"Common in flocks at Concepcion through the larger part of the year, only absenting itself from the middle of November to the middle of January, and even then a few may usually be found. They are almost always in company with the preceding species (*Heteropygia fuscicollis*), often forming flocks of several hundred individuals. Where they go in the summer I do not know, but they were abundant at Carhué and neighboring places in March and April." (Barrows, Auk, I. p. 314, October, 1884.)

HETEROPYGIA BAIRDI (Coues).

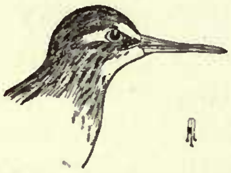
Actodromus bairdii, Coues, Pr. Nat. Sci. Phil. 1861, p. 194.

Tringa dorsalis, Burm. Reise La Plata, II. p. 503 (1861).

Tringa bairdi, Scl. P. Z. S. 1867, p. 332 (Santiago); id. & Salv. P. Z. S. 1868, p. 144 (Conchitas), 1873, p. 455 (Buenos Aires); Scl. P. Z. S. 1886, p. 404 (Tarapacá); Tacz. Orn. Pérou, III. p. 359 (1886); Seebohm, Geogr. Distr. Charadr. p. 444 (1888); Scl. & Huds. Argent. Orn. II. p. 184 (1889); James, New List Chil. B. p. 12 (1892); Aplin, Ibis, 1894, p. 209 (Uruguay, April).

Heteropygia bairdi, Sharpe, Cat. B. Brit. Mus. XXIV. p. 570 (1896; Tarapacá, Jan., Feb.: Santiago: Talcahuano, Sept.: Pampas Argentinas); id., Hand-list B. I. p. 164 (1899).

FIG. 166.



Heteropygia bairdi. Head of adult in winter. P. U. O. C. 7797. One half natural size.

GENERAL DESCRIPTION.

Size.—Male adult. P. U. O. C. 7796, near Rio Coy, Patagonia, 30 September, 1896. J. B. Hatcher.) Total length, 7.4 inches.

Wing, 4.85 inches.
Culmen, 1.0 inch.
Tail, 2.0 inches.
Tarsus, 0.95 inch.

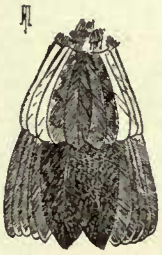
The sexes do not vary appreciably in size, but there is a considerable range in size individually, denoted by a minimum length of 6.9 inches and a maximum length of 7.7 inches. The wing varies from 4.6 inches to 4.9 inches.

Color adult male in breeding plumage. Head.—Crown greyish buffy, broadly streaked with blackish or very dark brown. Base of forehead and an eyebrow streak as well as the cheeks white; a dusky loral area; auriculars greyish with brownish buff shading.

Neck: Above buffy grey inclining to sandy, minutely streaked with brownish in contrast to the crown area. This color extending over the sides of the neck to the under parts and to the chest continuously. Chin white.

Back: Upper back and scapulars light brownish grey, inclining to sandy and irregularly marked with brownish black and greyish buff; the lower back and rump plain dusky, as are the *median upper tail coverts*, the *lateral upper tail coverts being white.*

FIG. 167.



Heteropygia bairdi. Showing the pattern of the tail and upper tail coverts. P. U. O. C. 7797. Two thirds natural size.

Tail: Uniform dusky, the two central rectrices being distinctly darker contrasted with the others. All the rectrices with white shafts.

Wings: Coverts brown with sandy buff edgings, the greater series rather darker and in addition edged with whitish. Bastard wing and primary coverts dusky. Quills light brown; the primaries darker on their exposed surfaces, and lighter on their inner webs. All the quills with their shafts ivory white shading to darker toward the tips. The innermost secondaries approaching the general character of the back in color and marking.

Lower parts: Chin and upper throat white. An undefined pectoral area continuous with the darker portions of the neck, greyish sandy buff, streaked and marked with dull greyish brown. Back of the pectoral area the lower parts are white with *little* or *no streaking on the sides or flanks.*

Bill, blackish.

Feet and legs, slaty black.

Iris, deep brown.

Adults in winter are plain buffy brown above, each feather with an indistinct dusky median streak. The feathers of the rump and *median upper tail coverts* dusky brown with dull buffy terminal edging. The lower parts are dull white, the sides of the neck and the pectoral area strongly suffused with buffy, obscuring the darker streaking, more apparent in the summer plumage.

Young birds of the year have the general appearance of adults but the suffusion of the darker regions is marked; it is caused by the terminal greyish white fringing and margining of the feathers.

Geographical Range.—America in general. More common in the interior. Breeding on the Arctic coasts. Migrating chiefly in the interior to South America. Reaching as far south as Chili and Northern Argentina, and in the interior to Southern Patagonia (S. Lat. 50°); accidental in Damara Land, Southwest Africa.

The naturalists of the Princeton Expeditions obtained Baird's Sandpiper in the interior of Southern Patagonia near Rio Coy. It does not appear to have been at all common at this point and was not observed or taken elsewhere in the region. The two individuals are cited in detail below.

While the species has been recorded from Chili and Western South America generally, it does not figure as an element in the Patagonian fauna, and apparently the two birds cited are the only known Patagonian records.

P. U. O. C.	Sex.	Date.	Locality.	Collector.
7796	Male.	30 September, 1896.	Near Rio Coy, Patagonia.	J. B. Hatcher.
7797	Female.	30 September, 1896.	Near Rio Coy, Patagonia.	J. B. Hatcher.

"On the 3d April I met with a party of five small Tringæ in a part of the Saúce where it was wide and shallow with low underbanks. I believe they were of this species, but the only one I knocked over managed to hide itself effectually. The next day I shot a female from a boggy bit higher up the river where I often shot Snipe. She rose silently and had somewhat the appearance of a small Snipe; the food in the stomach was the remains of small coleopterous and other aquatic insects." (O. V. Alpin, on Birds Uruguay, Ibis, p. 209, 1894.)

HETEROPYGIA FUSCICOLLIS (Vieillot).

Chorlito pestorejo, pardo, Azara, Apunt. III. p. 322 (1805).

Tringa fuscicollis, Vieill. N. Dict. d'Hist. Nat. XXXIV. p. 461 (1819: ex Azara); Hartl. Ind. Azara, p. 25 (1847); Scl. & Salv. Nomencl. Av. Neotr. p. 145 (1873); Durnf. Ibis, 1878, p. 68 (Buenos Aires, spring and autumn, common: Baradero, April), p. 404 (Sengel and Sengelen Valleys, common resident); Scl. & Salv. P. Z. S. 1878, p. 438 (Falkland Is.), iid. Voy. Chall. p. 109 (1881); Sharpe, P. Z. S. 1881, p. 16 (Peckett Harbour, Jan.); White, P. Z. S. 1883, p. 42 (La Plata, Nov., found plentifully on the edges of the lagunas); Vincig., Exped. Austr. Arg. p. 58 (1883: Isola degli Stati); Barrows, Auk, I. p. 314 (1884: Concepcion, Feb. to Oct.: Carhué, March and April); Scl. & Huds. Argent. Orn. II. p. 185 (1889: Patagonia, winter); Ridgw. Proc. U. S. Nat. Mus. XII. p. 137 (1889: Gregory Bay); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 127, 330 (1891); Holland, Ibis, 1891, pp. 16, 20 (Buenos Aires, March to May, common); Graham Kerr, Ibis, 1892, p. 151 (Lower Pilcomayo); Holland, t. c. p. 211 (Estancia Espartilla, fairly common March to Aug.); Carbajal, La Patagonia, part II. p. 273 (1900); Crawshay, B. Tierra del Fuego, p. 128 (1907); Useless Bay Settlement, September 17, 1904.

Pelidna schinzii, Darw. (nec Brehm), Voy. Beagle, Birds, p. 131 (1841: Shores of the inland bays of the southern parts of Tierra del Fuego).

Schœniclus schinzii, Gray (nec Brehm), List B. Brit. Mus. part III. p. 105 (1844: Port St. Julian, Patagonia).

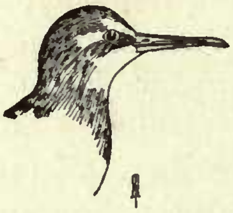
Tringa schinzii, Hartl. Naum. 1853, p. 222 (Chili); Phil. & Landb. Cat. Av. Chil. p. 36 (1868).

Tringa bonapartii, Scl. P. Z. S. 1860, p. 387; Abbott, Ibis, 1861, p. 156 (Falkland Is., summer visitor, breeds); Scl. & Salv. P. Z. S. 1868, p. 144 (Conchitas, winter visitor), 1873, p. 455 (Falkland Is.: Buenos Aires), Seebohm, Geogr. Distr. Charadr. p. 445 (1888); Burm. An. Mus. Buenos Aires, III, part X. p. 246 (1888: Falkland Is).

Actodromas fuscicollis, Baird, Brewer & Ridgw. Water Birds, N. Amer. I. p. 227 (1884).

Heteropygia fuscicollis, Sharpe, Cat. B. Brit. Mus. XXIV. p. 574 (1896: Patagonia and Falkland Islands); Schalow, Zool. Jahrb. Suppl. IV. p. 660 (1898: Punta Anegada, Tierra del Fuego, Jan.); Sharpe, Hand-list B. I. p. 164 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 626 (1900: Penguin Rookery, Feb.); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900: South Patagonia and Falkland Islands).

FIG. 168.



Heteropygia fuscicollis. Winter plumage. P. U. O. C. 7799. One half natural size.

GENERAL DESCRIPTION.

Size.—Adult Female, P. U. O. C. 7798, Near Port Gallegos, Patagonia, 18 January, 1898, A. E. Colburn.

Total length, about 6.6 inches.

Wing, 4.95 inches.

Culmen, 0.95 inch.

Tail, 1.8 inch.

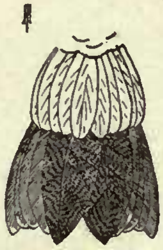
Tarsus, 0.9 inch.

The sexes do not vary greatly in size, but the individual variation is even more marked than in *H. bairdi.* The average size of *H. fuscicollis* is on the whole smaller than in *H. bairdi* but individuals of *H. fuscicollis* occur smaller than the smallest *H. bairdi* in the collections, and there is also one individual larger than any available examples of *H. bairdi.*

Color.—*Adults in breeding plumage.* Similar to *H. bairdi*, but much more rufous, the feathers of the interscapular region and the scapulars being broadly margined with rusty. The *upper tail coverts are all white*, though sometimes *marked with dusky.* The sides and flanks are not pure white, but have some dusky streaking, arrow shaped markings, or even barring, on the latter region. The general prevailing tone of rufous is marked on the head, and the region of the ear coverts. The pectoral region is buffy in tone much as in *H. bairdi.*

Winter adults are very similar in appearance to *H. bairdi* at that season, but can be generally discriminated, by their slightly smaller size, *white upper tail coverts* and the *markings on the sides and flanks.* At this season adults are more uniformly ashy grey than are the adults of *H. bairdi.*

Fig. 169.



Heteropygia fuscicollis. Showing the pattern of the tail feathers and the upper tail coverts. P. U. O. C. 7799. About two thirds natural size.

Young birds of the year are similar to summer adults in their general rusty tone, but have very broad whitish edging to the feathers of the back and to the scapulars. The pectoral region is browner and the streaking obscured by the terminal unworn edges of the feathers, which are long and filamentous. The sides of the body are washed with pale brown, through which the markings characterizing the species are obvious.

"Male. La Plata, Buenos Aires, Arg. Rep., Nov. 3, 1882.

"Iris brown.

"Found abundantly in flocks on the edges of the lagoons, sometimes intermingling with flocks of *T. dorsalis.*" (E. W. White, P. Z. S. 1883, p. 42.)

733, male, Falkland Islands.

"Eyes brown; stomach had sand, etc."

(Sclater & Salvin, on Birds Antarctic America, Voy. H. M. S. "Chall."—No. IX. p. 438, 1878.)

"Female in winter plumage: Peckett Harbour, January 4, 1879." (Sharpe, P. Z. S. 1881, p. 16.)

Geographical Range.—Eastern North America, breeding in the high latitudes. Migrating south by the Eastern Coast of Central America, and the Antilles to South America, reaching extreme Southern South America and the Falkland Islands.

Bonaparte's, or the white-rumped Sandpiper was obtained by the naturalists of the Princeton Expeditions and the individuals are cited below in detail.

P. U. O. C.	Sex.	Locality.	Date.	Collector.
7798	Female.	Palaike, Patagonia.	18 January, 1898.	A. E. Colburn.
7799	Female.	Palaike, Patagonia.	18 January, 1898.	A. E. Colburn.

In writing of the White-rumped Sandpiper Mr. Barrows says: "In small squads or large flocks at the same times and places as the following species." (Barrows, Auk. I. p. 314, October, 1884.) The "following species" here referred to is *Heteropygia maculata*, which the same writer speaks of as being present throughout the year save in the period between the middle of November and the middle of January. This is not a little remarkable, as both kinds of sandpipers are known to breed in the far North and during the months of May, June and July.

Genus ANCYLOCHILUS Kaup.

Type.

Ancylocheilus, Kaup, Natürl. Syst. p. 50 (1829) . . *A. subarquatus*.

Ancylocheilus, Kaup, = *Ancylochilus*, Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 585 (1896); id., Hand-list Bds. I. p. 164 (1899).

Falcinellus, Cuv. (nec V.), Règne Anim. I. p. 527 (1829). *A. subarquatus*.

Geographical Range.— Breeds in the Arctic regions. Migrates throughout Europe. Winters in Africa, India and Australia. Casual in Alaska, and accidental in Eastern North America and the West Indies. Accidental in East Patagonia.

ANCYLOCHILUS SUBARQUATUS (Güldenstein).

Scolopax subarquata, Güldenst. Nov. Comm. Petrop. XIX. p. 417 (1774).

Ancylochilus subarquatus, Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 592 (1896; East Patagonia).

General description.

Size.—Total length, about 7.4 inches.

Wing, 5.2 inches.

Culmen, 1.4 inches.

Tail, 1.9 inches.

Tarsus, 1.2 inches.

Female birds average a little smaller in size than do the males.

Color.—*Adults in the breeding season.* General color deep bay or cinnamon, the females not so highly colored as are the males. Adult male in breeding plumage.

Head: Crown deep cinnamon, with the dark centers to the feathers showing much less that on the back. The sides of the face are bright cinnamon chestnut, with the hoary tips of the winter plumage showing more or less.

Neck: Like the sides of the face but much more hoary on the back.

Back: The general color rich cinnamon with dark centers to each feather; lower back dull ashy brownish; the upper tail coverts white with tinges of cinnamon and some blackish barring; the rump is pure white shading into the ashy of the lower back.

Wings: Coverts cinnamon brown with whitish edges; the primary coverts darker; the primaries dark brown with white shafts and the secondaries fringed with white.

Tail: Ashy brown like the lower back and with white shafts and the hoary fringing of the winter dress showing more or less.

Lower parts: Bright vinous cinnamon back as far as the breast then pure white, the sides being more or less spotted with dusky.

In the winter plumage adult birds are dusky rufous above except on the forehead; the forehead, sides of the face and head and lower parts white. The dusky feathers of the upper parts are much suffused with pale greyish or hoary edging.

Young birds of the year in winter plumage are distinguished by the lack of rufous or bay tinge to the feathers of the upper parts. Otherwise they resemble closely the adults of the same season of the year.

Geographical Range.—Exact breeding point in the Arctic Regions unknown; the birds winter in Africa, India and Australia. Accidental in Eastern North America, Alaska and the West Indies; also in Eastern Patagonia.

The Curlew Sandpiper was not taken or observed by the naturalists of the Princeton Expeditions. The only record from that region is a single bird in the British Museum collected by Sir W. Burnett and Admiral Fitzroy. The label on this bird, which is a female adult, is East Patagonia; and it would appear that this nomad is of purely accidental occurrence in the area under consideration.

Genus GALLINAGO Leach.

	Type.
Gallinago, Leach, Syst. Cat. Mamm., etc., Brit. Mus. p. 30 (1816); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 616 (1896); Sharpe, Hand-List Bds. I. p. 165 (1899)	*G. major.*
Telmatias, Boie, Isis, 1826, p. 979	*G. stenura.*
Pelorhynchus, Kaup, Natürl. Syst. p. 119 (1829) . .	*G. gallinago.*
Nemoricola, Hodgs. J. A. S. Beng. VI. p. 491 (1837) .	*G. nemoricola.*
Homoptilura, Gray, List Gen. Bds. 1840, p. 70 . .	*G. undulata.*
Xylocota, Bonap. C. R. XLI. p. 660 (1855) . . .	*G. jamesoni.*
Cœnocorypha, Gray, List Gen. Bds. 1855, p. 19 . .	*G. aucklandica.*
Spilura, Bonap. C. R. XLIII. p. 579 (1856). . .	*G. solitaria.*

Geographical Range. — Almost cosmopolitan.

GALLINAGO PARAGUAYÆ (Vieillot).

Becasina prima, Azara, Apunt. III. p. 271 (1805).

Scolopax paraguaiæ, Vieill. N. Dict. d'Hist. Nat. III. p. 356 (1816: ex Azara); Fraser, P. Z. S. 1843, p. 118 (Chili, found in large flocks in the marshes during winter); Hartl. Ind. Azara, p. 24 (1847).

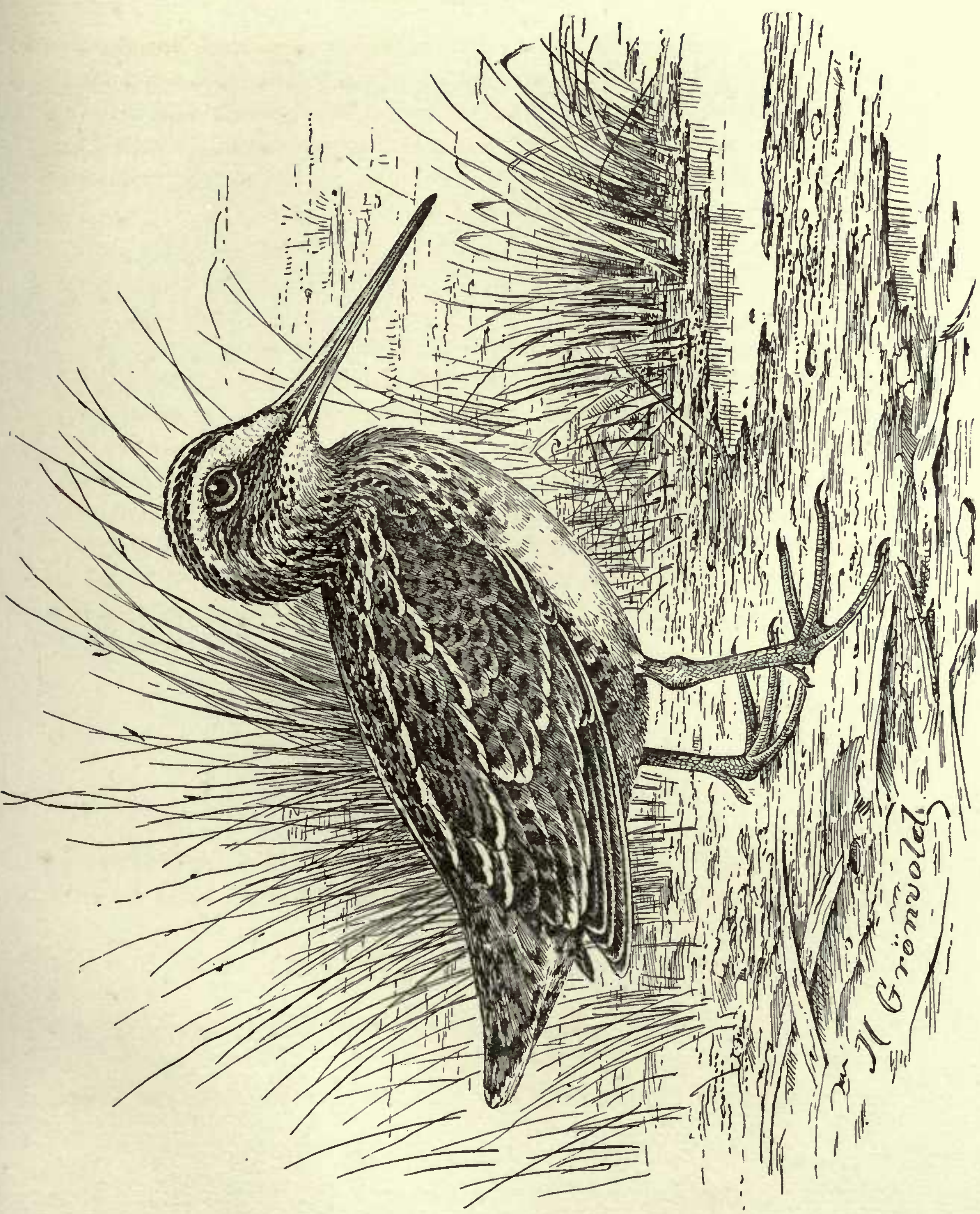
Scolopax magellanicus, King, Zool. Journ. IV. p. 93 (1828: Straits of Magellan).

Scolopax (*Telmatias*) *magellanicus*, Darw. Voy. Beagle, Birds, p. 131 (1841: Maldonado: East Falklands).

Scolopax (*Telmatias*) *paraguiæ*, Darw. Voy. Beagle, Birds, p. 131 (1841: Valparaiso; Maldonado; La Plata).

Gallinago magellanicus, Gray, List B. Brit. Mus. part III. p. 111 (1844: Straits of Magellan and Falkland Islands); Des Murs in Gay's Hist. Zool. I. p. 427 (1847); Scl. P. Z. S. 1860, p. 387 (Falkland Is.);

FIG. 170.



Gallinago paraguayæ. Adult. From a bird in the British Museum. Two thirds natural size.

Abbott, Ibis, 1861, p. 156 (Falkland Islands, Aug. to March, breeds end of August and September); Phil. & Landb. Cat. Av. Chil. p. 37 (1868).

Gallinago paraguayæ, Gray, List B. Brit. Mus. part III. p. 111 (1844: Valparaiso; Maldonado); Des Murs in Gay's Hist. Chil. Zool. I. p. 426 (1847); Schl. Mus. Pays Bas, V. Scolopaces, p. 11 (1864: Falkland Islands: Chili); Scl. P. Z. S. 1867, pp. 332, 339 (Chili); id. & Salv. Ibis, 1868, p. 189 (Sandy Point, Dec.); iid. P. Z. S. 1868, p. 144 (Conchitas); Phil. & Landb. Cat. Av. Chil. p. 37 (1868); Scl. & Salvin, Nomencl. Av. Neotr. p. 144 (1873); Durnf. Ibis, 1877, p. 198 (Buenos Aires, April to August); Scl. & Salv. P. Z. S. 1878, p. 438 (Puerto Bueno: Falkland Islands); iid. Voy. Chall. II. Birds, p. 109 (1881); Sharpe, P. Z. S. 1881, p. 15 (Cockle Cove, Feb.); Doering, Expl. al Rio Negro, Zool. p. 56 (1882: Rios Colorado and Negro); Barrows, Auk, I. p. 314 (1884: Concepcion, breeds in Sept. and Oct.: Carhué, April, abundant); Gibson, Ibis, 1885, p. 282 (Paysandu); Philippi, Ornis, IV. p. 160 (1888; Tilopozo, Tarapacá); Withington, Ibis, 1888, p. 472 (Lomas de Zamora, very abundant, breeds); Scl. & Huds. Argent. Orn. II. p. 181 (1889); Ridgw. Proc. U. S. Nat. Mus. XII. p. 137 (1889: Gregory Bay; Laredo Bay); Heine & Reichen. Nomencl. Mus. Hein. p. 331 (1890: Chili); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 124, 330 (1891); Holland, Ibis, 1891, p. 16 (Argent. Rep.); Scl. P. Z. S. 1891, p. 137 (Tarapacá); Graham Kerr, Ibis, 1892, p. 150 (Fortin Page, winter and spring); Holland, t. c. p. 211 (Estancia Espartilla, fairly common throughout the year); Aplin, Ibis, 1894, pp. 207, 215 (Uruguay); Lataste, Actes Soc. Scient. Chile, III. p. cxv (1894: Chilian Cordilleras); Sharpe, Cat. B. Brit. Mus. XXIV, p. 650 (1896: Patagonia and Falkland Islands); Lane, Ibis, 1897, p. 309 (Sacaya; Rio Bueno); Carbajal, La Patagonia, part II. p. 273 (1900); Salvad. Ann. Mus. Genov. (2) XX. p. 625 (1900: Santa Cruz, Jan.: Gregory Bay, April: Cape Collnet, Feb.: Skyring Mt., Melville Isl., June); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900: Straits of Magellan and Falkland Islands); Crawshay, B. Tierra del Fuego, p. 126 (1907); Useless Bay Settlement, August 31; San Sebastian Settlement, October 30; Cheena Creek Settlement, November 17, 1904 (nest and eggs collected).

Scolopax frenata, Burm. (nec Licht), La Plata Reise, II. p. 503 (1861); C. Burm. Ann. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Patagonia); Carbajal, La Patagonia, part II. 173 (1900).

Gallinago frenata, Durnf. (nec. Licht.) Ibis, 1876, p. 164 (Buenos Aires, Oct. ? breeding).

Scolopax frenata magellanica, Seebohm, Geogr. Distr. Charadr. p. 496 (1888).

Scolopax frenata chilensis, Seebohm, t. c. p. 496.

Gallinago paraguayæ chilensis, Schalow, Zool. Jahrb. Suppl. IV. p. 661 (1898: La Serena, Oct.; Punta Arenas, Feb.).

Gallinago paraguayæ magellanicus, Schalow, t. c. p. 661 (Seno Almirantazgo, Tierra del Fuego, Jan.; Buschuwaria, Beagle Canal, March).

GENERAL DESCRIPTION.

Size.—Adult male.

Total length, about 11 inches.
Wing, 5 inches.
Culmen, 2.6 inches.
Tail, 2 inches.
Tarsus, 1.25 inch.

The adult female is usually larger than the adult male. Adult female. (P. U. O. C. 7795, near head of Rio Mayer, Patagonia, 8 March, 1897. J. B. Hatcher.) Total length, about 11.8 inches.

Wing, 5.3 inches.
Culmen, 2.8 inches.
Tail, 2.25 inches.
Tarsus, 1.25 inch.

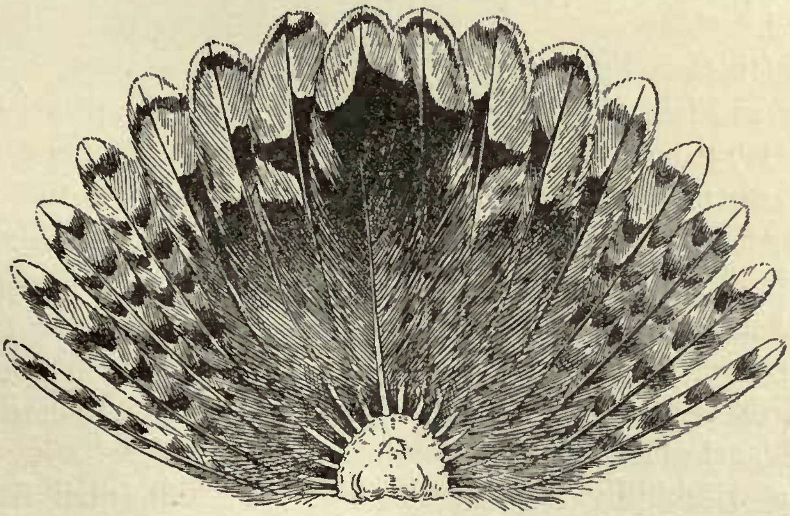
Color.—Adult female (cited). General color above black mottled and decorated with creamy and sandy buff. Below, creamy buff marked and decorated with blackish, until the chest is reached, thence white or buff white, plain on the lower breast and abdomen and barred on the sides and flanks with blackish.

Head: Crown. A median narrow line of sandy cream color. A broad black or blackish brown band running parallel to the median creamy line on each side. These dark bands defined on their outer edges by a sandy cream eyebrow streak. This streak runs to the bill and is defined in the loral region by a broad blackish brown streak running back to the eye and from behind it to the upper ear coverts. Below this band, beginning at the base of the lower mandible is another sandy cream colored band, which becomes defined below the eye by a blackish brown band across the lower auricular region.

Neck: All clear sandy cream, unmarked on the chin, and with a streaked and mottled appearance elsewhere, each feather having a blackish brown median area varying somewhat in shape and extent on the different parts of the neck.

Back: Outer scapular region black or deep velvety blackish brown, the feathers marked and notched with rusty. The back is further decorated by two broad lines of creamy buff, formed by the broad edging of the scapulars in that color. The scapulars are black otherwise, dotted, notched, and in parts almost barred with rusty. Lower back dusky, the feathers inclined to be filamentous, and being fringed with isabelline, cream buff and sandy, has a barred or mottled appearance. Upper tail coverts, rusty, narrowly barred in arrow shape with blackish, leaving rusty areas at least four times as wide as the dusky bars. Terminally the upper tail coverts are creamy or isabelline. Tail of sixteen feathers, black at the base, then becoming *broadly* rusty red with an arrow-shaped subterminal bar of black, the rusty after this subterminal black bar shading into creamy buff, almost white tipping each feather. The feathers gradually become lighter in color and more barred toward the outer sets,

Fig. 171.



Galinago paraguayæ. Showing tail pattern. From a bird in the British Museum. Natural size.

until the outermost rectrix is almost white with *five distinct dusky bars.* The outermost feathers are narrow or lanceolate as compared with the same feathers in *G. delicata* which in a general way this species closely resembles.

Wings: Upper coverts blackish brown, the marginal ones uniform, the median and greater series spotted by the whitish tips of each feather. Bastard wing and primaries blackish with five white tips.

Quills: Outer web, of first primary white or greyish white. Otherwise the quills are dusky or blackish, the secondaries being conspicuously tipped with white, *and the first secondaries do not exceed the longest primary coverts in length.* The innermost secondaries are barred black and rusty cream buff like the longer scapulars in general effect.

Lower parts: Chin deep creamy buff, and unmarked. The whole under neck similar in tone but streaked and mottled and almost barred in appearance by the irregular dark brown or blackish areas on each feather. From the lower breast back the ground color is white plain medianly and heavily barred with blackish on the sides and flanks. Under tail coverts washed with pale creamy buff and barred with blackish, somewhat irregularly. Under wing coverts, whitish barred with dusky, the primary series greyish with white tips. Axillaries, regularly barred black and white, the white bars a little the wider.

Bill: Olive brown, darker at the tip, and shading to green yellow at the base.

Feet and legs, olive brown.

Iris, dark hazel.

671, 672, females, Puerto Bueno.

"Eyes brown, feet bluish; in No. 672 the feet are yellowish."

729, male; 730, female, Falkland Islands.

"Eyes brown; stomachs had worms, etc."

(Sclater & Salvin, on Birds Antarctic America, Voy. H. M. S. "Chall."—No. IX. p. 438, 1878.)

The sexes do not vary in appearance, but winter birds are suffused and the markings are not so clearly defined.

Young birds of the year are more rusty in general tone, especially on the throat, breast and back.

There is a wide individual difference in the Patagonian Snipe but the material is not sufficient to generalize upon, though a correlation of two extremes in pale and dark Snipes of this species with the arid and damp regions of Argentina seems likely.

Geographical Range.—South America, from Pará southward to Patagonia and the Falkland Islands. Also Bolivia and Chili from Tarapacá to the Straits of Magellan. Breeding probably throughout its range.

The naturalists of the Princeton Expeditions found this Snipe at all points which they visited. Mr. J. B. Hatcher has given the following MSS. notes: "The Patagonian Jack Snipe is common in the tall grass about streams and ponds and has the same general habits as the Jack Snipes of other countries. It is distributed all over the Patagonian plains and in the marshes and along the streams of the lower Andes."

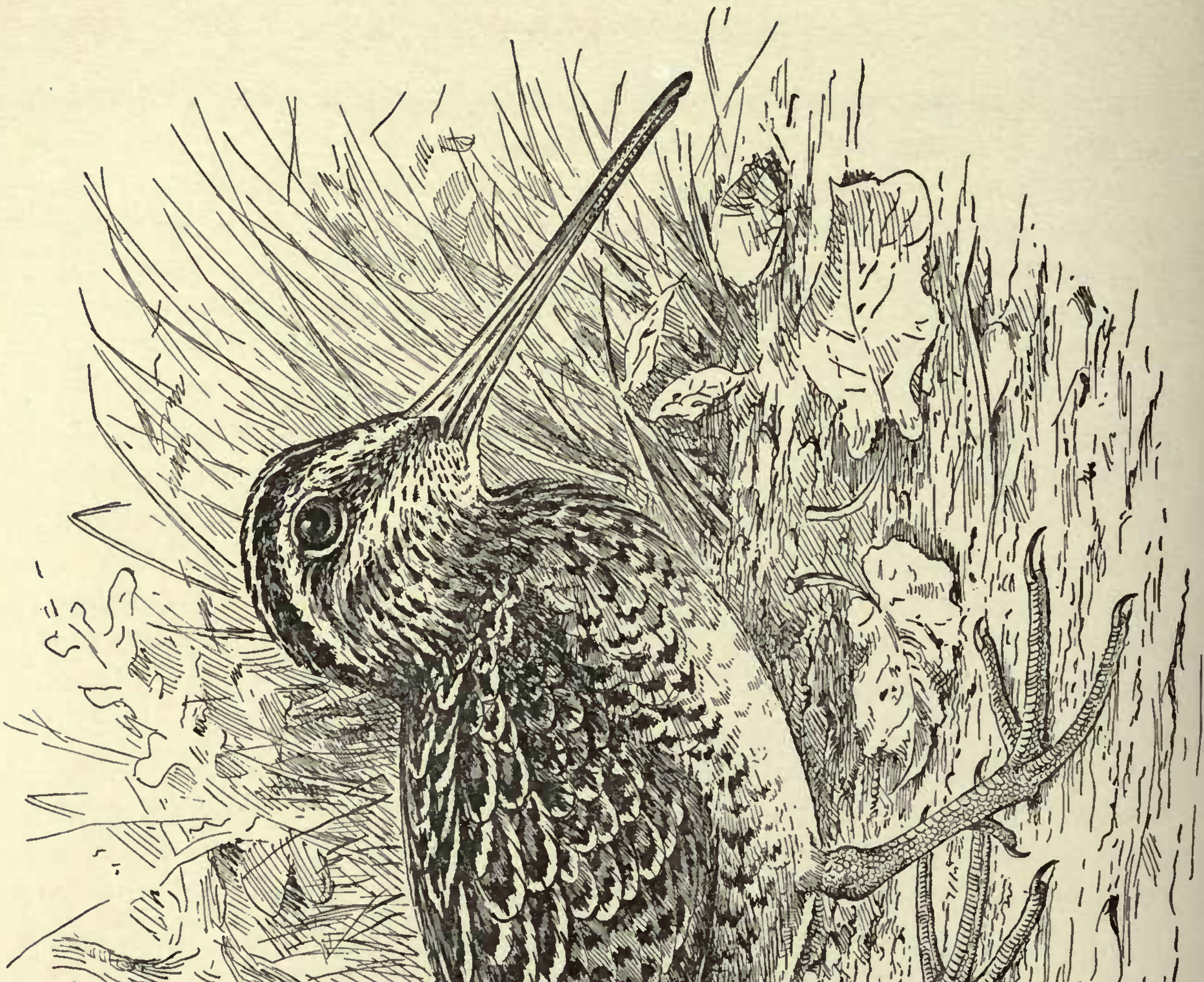
"Extremely plenty at Concepcion during the cold weather; less so in summer, but many remain to breed. A set of three eggs was taken September 16, 1880, and two eggs from another nest on October 12. Both nests were slight hollows in the ground, with a few bits of straw and grass for lining. The eggs are as much like those of *G. wilsoni* as are the birds themselves; that is to say very similar indeed. During the winter the Snipe collected in some of the marshes to the number of thousands, and often twenty or thirty would rise at the report of the gun and circle about in a loose flock before settling again. They were abundant in Carhué early in April." (Barrows, Auk, I. p. 314. July, 1884.)

"Resident apparently, though much more common at some seasons than others. The comparative abundance probably depends upon the rainfall. In the latter half of October they were common along marshy cañadas and similar places on the Saúce. They were evidently there for breeding purposes, as they were tame, often gave you a view of them on the ground, were constantly 'drumming' in the air, and on the ground uttering a note like *chuttuk*. The females (?) cried '*chuttuk*' or '*chuk-chuk-chuk*' on rising. The sound of the drumming differs from that produced by the English Snipe; it is a long shaking *kurrrrrr* (the sound can be reproduced to some extent in the back of the human throat); sometimes it varies to a deep low-noted hollow *gurrrrr*, and, like our bird's drum, is audible at a considerable distance.

"The Snipe, when drumming, is said to be calling for water, but I forget the exact name used for the bird. I often searched for the nest among the tall grass and herbage on the boggy banks of cañadas where I flushed Snipe, without success, but on the 23d November, when galloping home with a companion through some low paja near the Saúce on Sta. Adelaida, a Snipe fluttered from under my horse's feet; this was thirty yards at least from the river and quite dry ground. The nest was in a tuft of paja, formed of a few grass-blades, and contained two fresh eggs. By Christmas all, or nearly all, the Snipe had disappeared from the neighborhood, the country having become excessively dry. A very few put in an appearance about the end of February and early in March, but it was not until early April (after a heavy rain-storm) that we saw any great number. All through that month and in May they were rather numerous, although more plentiful on some days than others. Their habits at that season almost exactly resembled those of our bird. The cry on rising was '*quirk, queak*,' or '*quir-eak*.'

"It seems just possible that some of these Snipes which visited us in autumn may have bred at that season. At all events I noticed that in May, while most of the birds remained more or less wild, as autumn Snipe are, some were tame and behaved exactly as others did in the spring. In the early part of May we had some very fine warm weather, and it was on the 1st of that month that I first noticed Snipe drumming in the autumn just as they did in spring; I observed this during the day as well as at sundown for a fortnight afterwards, but in the cold period which followed I did not notice them, and I left about the end of the month. In the first week I saw two or three supposed pairs, and on the 8th I observed one pair especially, where the Saúce ran swiftly through low green banks, sheltered by higher banks, tall paja, &c., and was studded with green islets. The pair, on being disturbed, settled on the short green turf in full view, the male rising again, but the female remaining on the ground uttering a loud *chuk chuk chuk* continuously (rather like the alarm-call of a hen Partridge which has small young in the grass) for some time, then rose and flew a few yards with upraised wings, and, alighting again, continued calling. When on the wing her note was a rapid *tuka tuka.* Meanwhile the male was drumming loudly overhead. I could also that afternoon (had I been so inclined) have shot a few other Snipe on the ground, but at the same time the rest of the birds seen (a considerable

FIG. 172.



Gallinago stricklandi. Adult. From a bird in the British Museum. Two thirds natural size.

number) had their winter habits and were rather wild." (O. V. Alpin, on Birds Uruguay, Ibis, pp. 207–208, 1894.)

"Winter and resident game birds are uncommonly plentiful this season, affording me a good opportunity for securing specimens and observing their habits. As I am fond of gunning, the Duck and Snipe families are favorites. Of the *Scolopacidæ* I am acquainted with twenty species. Seventeen of these are well known to naturalists, or at least have had their affinities determined; but before writing much about them I should like to become more familiar with some of their habits, especially the times of their arrival and departure, also the nidification of the resident species. The other three are perhaps not known, or are not considered natives of this region. I have formerly shot, but never preserved, specimens of two of them. But I will say no more at present about these birds, as memory is not a faithful guide in such matters, and some favorable chance may bring them in my way again." (Hudson, P. Z. S. 1870, p. 799.)

Examples of *Gallinago paraguayæ* have been received by the British Museum from Lake Blanco, Chubut, collected by J. Koslowsky in September, October and November. The birds appear to be adult, the bill, however, varying from 2.45 to 3.00 inches in length.

GALLINAGO STRICKLANDI (Gray).

Gallinago stricklandi, Gray, List B. Brit. Mus. Part III, p. 112 (1844: Hermit Isl.); Scl. & Salv. P. Z. S. 1868, p. 144 (Patagonia); iid. Nomencl. Av. Neotr. p. 145 (1873: Chili & Patagonia); Sharpe, P. Z. S. 1881, p. 15 (Swallow Bay, March); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 293, 330 (1891); James, New List Chil. B. p. 12 (1892); Sharpe, Cat. B. Brit. Mus. XXIV. p. 660 (1896); Lane, Ibis, 1897, p. 310 (Tarapacá); Sharpe, Hand-list B. I. p. 166 (1899); Salvad. Ann. Mus. Genov. (2) XX. p. 625 (1900: Punta Arenas, May); Martens, Hamb. Magalh. Sammelr. Vög. 15 (1900: Straits of Magellan).

Scolopax stricklandi, Gray, Erebus & Terror, Birds, pl. 23 (1846); Sharpe, t. c. App. p. 37 (1875); Seebohm, Ibis, 1886, p. 130; id. Geogr. Distr. Charadr. p. 448 (1888).

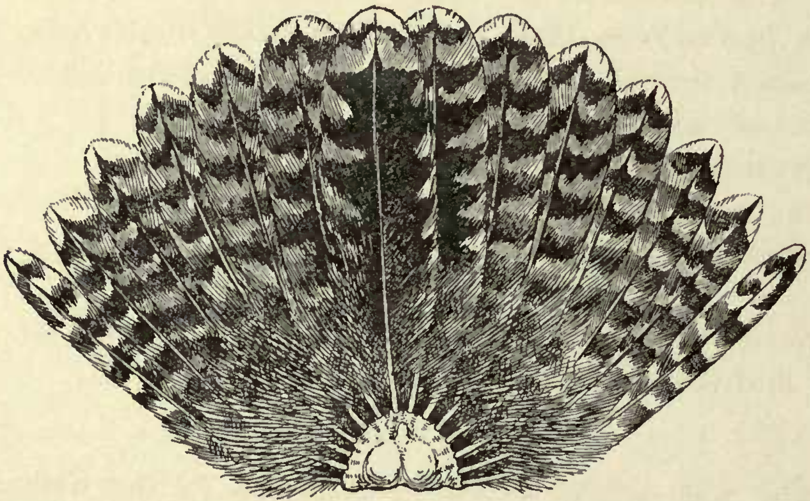
Scolopax meridionalis, Peale, U. S. Expl. Exped. Birds, p. 229 (1848: Orange Bay).

Telmatias stricklandi, Reichenb. Grall. tab. LXX. fig. 998 (1850).
Scolopax spectabilis, Hartl. Naum. 1853, p. 216 (Valdivia).
Xylocota stricklandi, Bp. C. R. XLIII. p. 579 (1856).
Gallinago paludosa, Scl. (nec Gm.), P. Z. S. 1867, pp. 332, 339 (Chili).
Gallinago nobilis, Oust. (nec Scl.), Miss. Scient. Cap Horn, Oiseaux, pp. 126, 330 (1891: Orange Bay).

GENERAL DESCRIPTION.

Size. — Adult male. Total length, about 14 inches.
Wing, 6 inches.
Culmen, 3.35 inches.
Tail, 2.4 inches.
Tarsus, 1.4 inch.
Adult female. Total length, about 14.5 inches.

FIG. 173.



Gallinago stricklandi. Showing the pattern of the barring of the tail feathers. From a bird in the British Museum. Two thirds natural size.

Wing, 6.1 inches.
Culmen, 3.3 inches.
Tail, 2.4 inches.
Tarsus, 1.3 inch.

Color. — Adult male. Pale tawny in general tone, with the conventional snipe marking on the head and back.

Head: Marked much as in *G. paraguayæ* but more tawny in general tone and the striping of the head tawny buff.

Neck: Tawny buff above and below, palest and unmarked on the chin; mottled and brokenly or irregularly barred elsewhere.

Back: Of the characteristic snipe pattern but the light streaks along the scapulars and the sides of the back not well defined, though apparent.

Tail: Normally of sixteen feathers, but often having only fourteen. *Regularly barred black and rufous.* The rufous of a dull tone and *the black bars wider than the rufous ones.*

Wing: Primary coverts plain brown, with fringing and slight markings of sandy buff at their tips. Primaries plain brown. *The exposed outer web of the first primary brown with regular indentations of sandy buff, giving this part of the feather a chequered appearance.* The secondary quills barred rufous and black, the *rufous bars being the wider.* The inner greater wing coverts are barred in a similar manner *externally.*

Lower parts: Under surface of the body sandy buff, palest on the chin, mottled and irregularly barred on the neck and breast, in the characteristic way. The abdomen clear sandy buff and the sides, flanks and under tail coverts barred with black or blackish. The under wing coverts and axillaries sandy buff barred with dark brown, the brown bars being wider.

The sexes are alike in appearance.

"Feet greyish yellow." (Dr. Coppinger.)

"Female: Swallow Bay, March 14, 1880. Eyes dark; legs and feet greyish yellow. Weight 9 oz." (Sharpe, P. Z. S. 1881, p. 15.)

Geographical Distribution.—Extreme southern South America, Tierra del Fuego and the region about the Straits of Magellan.

This snipe was not observed or collected by the naturalists of the Princeton Expeditions. The description given is based on the material in the British Museum of Natural History.

Genus ROSTRATULA Vieillot.

	Type.
Rostratula, Vieill. Analyse, p. 56 (1816); Sharpe, Cat. Bds. Brit. Mus. XXIV. p. 683 (1896); id., Hand-list Bds. I. p. 167 (1899)	*R. capensis.*
Rhynchæa, Cuv. Règne, Anim. I, p. 487 (1817) . .	*R. capensis.*

Geographical Range. — Ethiopian, Indian and Australian Regions, ranging into China and Japan. Southern portion of the Neotropical Region.

Rostratula semicollaris (Vieillot).

Chorlito golas obscura y blanca, Azara, Apunt. III. p. 323 (1805).

Chorlito cabeza y cuello obscuros, Azara, t. c. p. 325.

Totanus semicollaris, Vieill. N. Dict. d'Hist. Nat. VI. p. 402 (1816; ex Azara, III. p. 323).

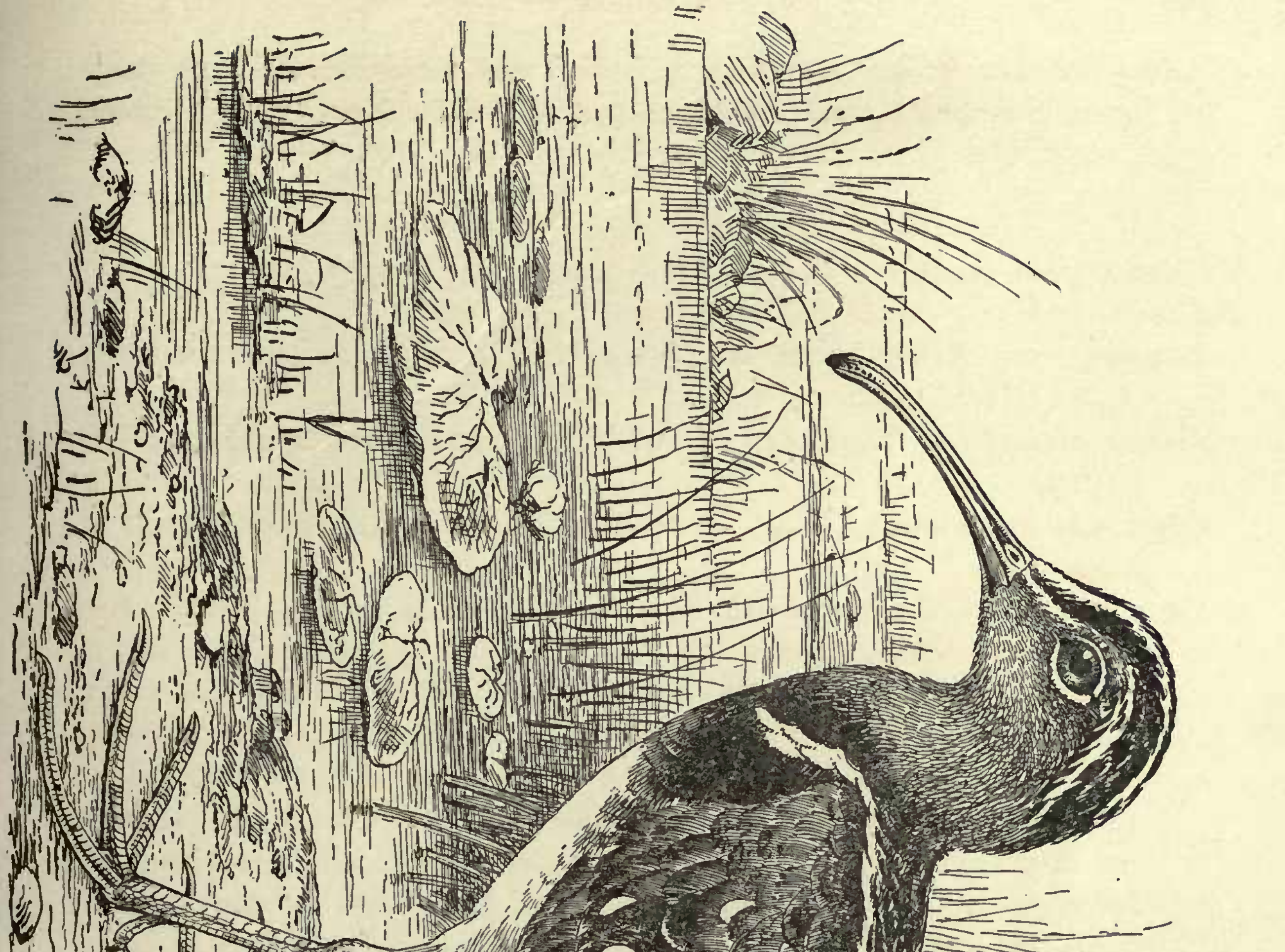
Tringa atricapilla, Vieill. op. cit. XXXIV. p. 474 (1819: ex Azara, III. p. 325).

Rhynchæa occidentalis, King, Zool. Journ. IV. p. 94 (1828: Straits of Magellan).

Rhynchæa semicollaris, Darwin, Voy. Beagle, Birds, p. 131 (1841: Rio Plata: Montevideo); Frazer, P. Z. S. 1843, p. 118 (Chili); Gray, List B. Brit. Mus. part III. p. 109 (1844: Chili); Hartl. Ind. p. 25 (1847); Des Murs in Gay's Hist. Chil. Zool. I. p. 429 (1847); Schl. Mus. Pays Bas, V. Scolopaces, p. 18 (1864: Chili); Scl. P. Z. S. 1867, p. 339 (Chili); Phil. & Landb. Cat. Av. Chil. p. 37 (1868); Scl. & Salv. P. Z. S. 1868, p. 144 (Conchitas); iid. Nomencl. Av. Neotr. p. 145 (1873: Patagonia); Durnf. Ibis, 1876, p. 164 (Buenos Aires, breeding in Sept. and Oct.); 1877, p. 42 (Chupat Valley, Nov. rare), p. 199 (Buenos Aires, resident), 1878, p. 403 (Chupat Valley); Sharpe, P. Z. S. 1881, p. 16 (Coquimbo, June); Salvin, Cat. Strickl. Coll. p. 608 (1882: Valparaiso); id. P. Z. S. 1883, p. 429 (Chili); Barrows, Auk, I. p. 314 (1884: Concepcion, abundant resident, breeds in Sept.); Tacz. Orn. Pérou. III. p. 378 (1886); Berl. J. f. O. 1887, p. 126 (Paraguay); Seebohm, Geogr. Distr. Charadr. p. 459, pl. XIX. (1888); Withington, Ibis, 1888, p. 472 (Lomas de Zamora, abundant in the marshes, not observed breeding); Scl. & Huds. Argent. Orn. II. p. 182 (1889); Oust. Miss. Scient. Cap Horn, Oiseaux, pp. 293, 330 (1891); Holland, Ibis, 1891, pp. 16, 20; James, New List Chil. B. p. 12 (1892); Holland, Ibis, 1892, p. 211 (Estancia Espartilla, fairly common throughout the year, breeds in Nov.); Lane, Ibis, 1897, p. 310 (Orauco).

Rhynchæa hilairea, Licht. Nomencl. Av. Mus. Berol. p. 93 (1854: Montevideo).

FIG. 174.



Rostratula semicollaris. Adult. From a bird in the British Museum. Natural size.

Rhynchæa hilarii, Burm. La Plata Reise, II. p. 504 (1861: Rio Paraná); C. Burm. An. Mus. Nac. Buenos Aires, III. part X. p. 246 (1888: Patagonia); Carabajal, La Patagonia, part II. p. 273 (1900).

Rostratula semicollaris, Sharpe, Cat. B. Brit. Mus. XXIV. p. 690 (1896); id. Hand-list B. I. p. 167 (1899); Martens, Hamb. Magalh. Sammelr. Vög. p. 15 (1900: Patagonia).

GENERAL DESCRIPTION.

Size.—Adult male. P. U. O. C. 8809. Ensenada, Argentine Republic April, 1896. S. Pozzi.

Total length, 8 inches.

Wing, 4.1 inches.

Culmen, 1.55 inch.

Tail, 1.9 inch.

Tarsus, 1.45 inch.

The sexes do not vary appreciably in size nor does there seem a wide range of individual variation in this respect.

Color.—General color dark sooty brown above; below dark sooty brown back as far as the chest, from there back pure white.

Head: A broad buffy median stripe reaching from the bill to the occiput, defined on each side by a much broader black stripe. These black stripes are defined on their outer borders by a narrow creamy whitish eyebrow line, which in many individuals is not continuous. A very narrow buff eye ring. Sides of head and face dark sooty brown.

Neck: Throughout uniform dark sooty brown.

Back: Dark sooty brown, vermiculated with grey and blackish on the upper back and scapulars. The scapulars also have subterminal blotches or markings of black, and a deep bronzy chestnut bar at the end of each feather, this bar being darkest near the tip of the feather, the extreme tip narrowly fringed with silvery white. Some of the scapulars have the external webs tawny buff, which together form a broad streak defining each side of the back. Lower back shading into lighter earthy brown which extends over the rump and becomes more sandy or rufous on the upper tail coverts. The whole of these areas crossed by obscure dusky lines, which are most distinct on the upper tail coverts.

Tail: Rectrices pale buff broken by many narrow dusky cross bars.

Wings: Wing coverts blackish brown with sandy edgings. The median and greater series decorated with large moon-shaped spots of silvery white. Parapteral feathers short, black at the base and broadly tipped with silvery white, forming together a conspicuous shoulder patch. Bastard wing and primary coverts blackish brown, decorated with rounded spots of silvery white on their outer webs, and bars of silvery white on the inner ones. Primary quills blackish, decorated with silvery white round spots on the outer webs and bars of white on the inner web, which do not generally reach the shaft of the feather. The outer secondaries are similarly decorated, but lighter in body tone, and all the quills are margined with white at the ends. The innermost secondaries are much like the scapulars in appearance.

Lower parts: Entirely deep sooty brown back to the chest, where the demarkation is abrupt and defined sharply, changing to an almost white coloring which prevails over the rest of the lower parts. On each side of the chest in the dark area a large spot of silvery white is conspicuous. Lower breast and abdomen pure white. Sides of the body sandy buff with some obsolete dusky barring and freckling. Under tail coverts sandy buff. Axillaries white. Under wing coverts white with a few black marks or bars. Quills dusky grey below, showing the white barring of the inner webs.

Iris: Dark brown (S. Pozzi).

The sexes do not differ in appearance.

Young fully grown differ from the adults in being paler brown, in having white fringing to the feathers of the throat, and in having the silvery white markings on the wing coverts replaced by similar tawny buff decorations.

Geographical Range.—Peru, Chili, Uruguay, Argentina and Patagonia to the Straits of Magellan.

This curious Snipe was not procured by the naturalists of the Princeton Expeditions, but has been obtained at many points in Patagonia. The material in the British Museum of Natural History and the small series in the Princeton Museum form the basis for the description given.

Mr. Barrows in his admirable "Birds of the Lower Uruguay" writes of this bird:

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